

A
DISSERTATION
ON
CANCEROUS DISEASES.

THE UNIVERSITY OF CHICAGO

PHILADELPHIA, 1876

DISSEMINATION

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C A N C E R O U S D I S E A S E S.

BY

Bernard

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TOULOUSE, &c.

Approved

TRANSLATED FROM THE LATIN, WITH NOTES.

L O N D O N:

PRINTED FOR J. WILKIE, No. 71, St. PAUL'S CHURCH-YARD.

M.DCC.LXXVII.

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B. R. P E Y R I E, M. D.
REGIUS PROFESSOR OF SURGERY, AND MEM-

Prolem sine matre creatam.
G E N Y, AT P A R I S; AND OF THE
A C A D E M I E O F M O N T P E L L I E R,
T O U L O U S E, &c.

T R A N S L A T E D F R O M T H E L A T I N, W I T H N O T E S.

L O N D O N :

P R I N T E D F O R J. W A L L E S, N O. 7, S. P A U L ' S C H U R C H Y A R D.

M D C C C L X V I I I .

P R E F A C E.

THAT a disease is beyond the reach of art, is a truth, 'which, tho' sometimes undeniable, is always acknowledged with reluctance.' But, perhaps, on no occasion, is it more evident, than in cases of Cancer. These melancholy complaints are so slow in their progress, and so painful, and certainly destructive in their event, that all new and useful ideas concerning them, deserve to be laid before the public, and the authors of
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them to be encouraged. The editor, therefore, flatters himself, that Dr. Peyrilhe's work will be favourably received in this country. — He seems to have gone farther than any other has done before him, towards ascertaining the nature of the disease; and if he sometimes goes into the field of conjecture, it is not with a view to indulge in idle reveries. — He will be found constantly reasoning from analogy and facts. — Indeed, on a subject which is of so much importance, and which has been hitherto so involved in obscurity, he has surely some right to speculate.

By pointing out to us the true principles of the disease, he has proved that,

that, altho' it is, in many cases irremediable; yet, that it will admit of cure in some, and of palliation in all.

The reader will, perhaps, not be sorry to see the opinion of the Academy at Lyons, on this work: it is contained in the following advertisement, the original of which is in French.

'The Academy of Sciences, Belles
'Lettres and Arts, at Lyons, proposed
'the following as the subject of a prize-
'Dissertation, for the year 1773. *To*
'*form such inquiries on the causes of*
'*cancerous virus, as may lead us to as-*
a 2 'certain

*' certain its nature and effects, and
' best methods of obviating it.*

*' Authors were given to understand,
' that it was expected they should de-
' fine what is meant by the word,
' Cancer; point out the progress that
' has been made by physicians, even to
' these times in the knowledge of can-
' cerous diseases; and likewise analyse the
' observations, experiments, and opini-
' ons, of the most celebrated writers;
' selecting together, at the same time,
' all the dietetic, surgical and pharma-
' ceutical means, that have been hitherto
' employed in the treatment of these
' formidable diseases:—that they should
' give an account of their own proper ob-
' servations; and describe all the symp-
' toms*

‘toms that precede and accompany Can-
 ‘cers : point out the prognostics, and
 ‘establiſh indications of cure, in all
 ‘the ſeveral ſtages and varieties of the
 ‘disease :—that they would be expected
 ‘too, to trace each of theſe phenomena,
 ‘to its ſource, ſo as to enable us to
 ‘diſtinguiſh them with preciſion ; and
 ‘that they would likewiſe lay down a
 ‘ſatisfactory theory ; and alſo give a view
 ‘of all the beſt known ſpecifics in differ-
 ‘ent caſes, and determine the efficacy
 ‘or inefficacy of each :—in ſhort, that
 ‘they would be expected to throw, if
 ‘it be poſſible, ſome new light on the
 ‘diſcoveries which may ſtill be hoped
 ‘for, and on the means of attaining
 ‘them.—The Academy requested the ſe-
 ‘veral writers, who might be candidates
 ‘on

‘on this occasion, to add a table to
 ‘their dissertations, which might exhibit,
 ‘at one view, a recapitulation of
 ‘the most essential things they had advanced.

‘The original prize was of 600
 ‘livres, and given by M. Pouteau,
 ‘a member of the Academy.—A citizen,
 ‘zealous for the good of his fellow-creatures,
 ‘has (without being willing to make himself known),
 ‘doubled the proposed sum ; so that the prize
 ‘is actually of 1200 livres. *

‘There were many considerable works
 ‘presented to the Academy, on this occasion ;
 ‘the most distinguished of them,

* Fifty Guineas.

‘was a Dissertation in Latin, intitled,
‘*De Cancro, Dissertatio Academica* ;
‘with this motto, *prolem sine matre*
‘*creatam* :—It is to this work the Aca-
‘demy has adjudged the 1200 livres.

‘The author of it is Ber. Peyrilhe,
‘M. D. &c.—Altho’ his work is ele-
‘gantly written in Latin, the Academy
‘invites the author to publish it with a
‘translation, which, by placing it within
‘the reach of a greater number of readers,
‘will render it more generally useful.’

A translation of it has accordingly
been published in French, by Dr. Ma-
they, a physician of Montpellier, to whom
the author was so obliging as to commu-
nicate many additional notes :—all these

im-

improvements are introduced in the edition which is now offered to the public : the present editor has likewise added some few notes, in different parts of the work ; and he flatters himself, they will be found to be useful :—he has distinguished them by an asterisk *.—With respect to the translation itself, he has aimed at giving the sense of his author ; and believes he has succeeded pretty well in the attempt : to do this more clearly in English, he has ventured, in some few places, to vary the expressions of the original :—in short, he has omitted no pains to do justice to the subject, and to render his performance worthy the attention of the medical reader ; and he now very respectfully leaves it to the public to judge of its merit.

A

DISSERTATION

O N

CANCEROUS DISEASES.

INTRODUCTION.

§ I. **T**HE Cure of cancerous diseases has withstood the efforts of the most celebrated physicians in all ages.--- It is, therefore time to explore some new method, which may, perhaps, be more successful.---In this attempt we shall derive much information from those who have gone before us, so far as relates to the description of the disease. It was the peculiar excellence of the ancients, to be attentive and accurate ob-
B servers

servers;---but on the subject of the proximate cause of Cancer, and on the nature of the cancerous virus itself, we shall be found to owe them but little.--- We shall also cautiously adopt their precepts in the dietetic and pharmaceutic treatment of these complaints, lest in the melancholy effects which they themselves acknowledge to us, we should discover the ultimate bounds of the healing art.

§ II. The little success with which the attempts of the moderns have been attended either in the way of ascertaining the nature of the cancerous virus, or of curing it, has been acknowledged by all. The knife and the caustic are even now our only remedies, and in the infancy of our art, were they not the same?

§ III. We must, therefore, by some new route proceed to this melancholy disease, which has hitherto been attacked in vain. ---Some new principles must be established, from which indications of cure may be deduced, not always successful, perhaps, in their event, but different from former ones.

ones.---Our labours on this subject will be sufficiently recompensed if this little work should be the means of convincing the public of the necessity there is for abandoning the ordinary routine, if we wish to explore the causes of Cancer, to determine its nature, and to ascertain the most eligible method of cure.---I shall therefore arrange the subject proposed by the Academy, under the five following heads.

The first shall be to investigate the causes of the cancerous virus.

2. To determine its real nature.
3. To explain its effects.
4. To consider and point out those states of cancerous diseases in which a cure may be obtained by the use of internal as well as external medicines.
5. To ascertain the best method of effecting a cure.

S E C T I O N I.

The Causes of the Cancerous Virus investigated.

§ IV. Before we enter into this inquiry, it seems right to establish a theory of cancerous diseases. --- and this seems to be the more necessary, because the cancerous virus will be found to be so connected with the causes of the disease, as to be chiefly derived from them.

§ V. If the cure of Cancer is difficult, its definition is not less so. --- Look into authors, and you meet with definitions without number, but in general they are confused ones, and very often convey

vey opposite meanings (a)---This defect seems to have been the inevitable consequence of introducing a variety of distinctions in a disease that is simple in its nature; or rather, forming many diseases out of one:---So that 'besides many other names, we meet with the following: *complete and incomplete Schirrus; mild and malignant Schirrus*---and *occult Cancer*---but considering as we do the Schirrus and Cancer, as one and the same disease, we shall endeavour to ascertain its several degrees or periods, and to describe the variety of its appearances and symptoms, in these different stages.---This method seems to be the best adapted to the nature of the disease, and will enable us, we hope, to throw some new light on the subject.

§ VI. A Cancer appears to be a hard tumour of a clear shining appearance, but with-

(a) It would be endless to quote all these writers—we will only just mention the following in proof of what we have advanced.—The *occult Cancer*, says Juncker, (Consp. Chir. P. 137.)

without changing the colour of the skin that covers it, and is sometimes attended with a good deal of pain, but on other occasions with little or none (b).

§ VII. This tumor increases in size, or remains in the same state:---while it increases, it is running through its first stage

p. 137.) is nothing more than the *sanguineous Schirrus*—and the *malignant Schirrus* of Platner (Inf. Chir. Sect. 264.) answers the description given to the *occult Cancer*, by Boerhaave. (Aphorism 494.)

(b) The generality of authors have considered Cancers as germinating from a minute tubercle, as may be seen in Hoffmann, Gendron, who is not without some degree of celebrity, and others.—Baron Van Swieten (vol. 1. p. 779.) considers *Meliceris*, *Atheroma* and *Steatoma*, as being of the same class as *Schirrus* and consequently of *Cancer*.—We read in Platner, (Instit. Chirurg. § 773.) that a *Ganglion*, the mildest of all tumours, having changed into *Cancer*, and afforded an incredible discharge of an acrid and fetid humour, at length destroyed the patient.—These few examples, taken from a multitude of others, will be sufficient for our purpose.—But there may be some readers to whom our definition or rather description of *Cancer*, may not be sufficiently satisfactory—and we request them to consider how much eroding ulcers, which have been called cancerous, differ from the true *Cancer*;—and to consult § 63 of this work, where those ulcers are more particularly spoken of.

They

stage (c)---The moment it ceases to be painful, and loses its sensibility (d) it has reached its second stage.

§ VIII. A Cancer frequently remains many years in this second stage, and oc-

They who give simply the name of *tumor* to the disease in these two first stages, and allow the name of *Schirrus* only to what we consider as the third period, differ from us only in terms, and certainly mean the same thing.—When they attempt to investigate the beginning of Cancer, they all of them go back to the lymphatic tumors which we consider as the first and second degrees of Cancer.—The only difference, then, between us, is, that by a clear and natural division we develop clearly and easily the beginning of Cancer, while they do it with difficulty and obscurity.

(c) *Schirrus non exquisitus, imperfect Schirrus* of authors.

(d) *Schirrus exquisitus.—Perfect Schirrus.* Authors speak of the insensibility of Schirrus, as of a certainty.—But how has this insensibility been proved? Who ever touched one of these tumours, but with the instrument with which it was to be extirpated?—and if it is impossible to touch it, how can insensibility be established as a *diagnostic* sign of Schirrus? we are certainly permitted to say, that a Schirrus is attended with no pain, but not to say that it is insensible.—I have not, however, been willing to refuse this supposed loss of sensibility, that I might not seem to deviate too much from the ordinary definition.

casions

cautions no inconvenience to the patient---but more commonly, either from its own powers, the injudicious use of stimulating, or other applications; sometimes from intemperance, a blow, or other causes, it recovers its sensibility even to an extreme degree, and then there comes on a lancinating, pungent, burning pain, which indeed is not constant, but returns at stated intervals, and more especially towards night. --- These are the characteristic phenomena of what we consider as the third stage (c) of the disease.

§ IX. These symptoms go on increasing, till at length the tumor becomes, as it were, rough and unequal---it raises itself into a point, and the vessels which are distributed around it, become tumid, and of a violet, or darkish, and even of a black colour---still, however, the tumor increases in bulk, and becomes softer in

(c) *Schirrus malignus* of some writers.—*Occult Cancer*, of others.

certain spots, and at length the skin, being, as it were, eroded, opens and forms an horrid ulcer, the borders of which soon appear thick, hard, and turned back, and of a pale red or livid colour.---This ulcer discharges an acrid and fœtid ichor, of a dark, yellow, green and bloody colour, which corrodes (f) and devours all the parts it passes over, and at length terminates the life of the patient, by the most horrible torments unless seasonably relieved by remedies (g).

§ X. The most ordinary seat of Cancer is in the glands; all soft, loose, glandular parts, and every organ, that is composed

(f) Ætius observes, at vero ulceratus Cancer assiduo erodit, et ad profundum perfodit, nec fisti potest et saniem emittit omni serarum veneno deteriore, copia et odore abominabilem.—Hildanus, Wiseman, and other surgical writers, are filled with accounts of the ravages of this disease. *

(g) This is the fourth stage, or *Cancer Apertus*.—The *Carcinoma* of authors. The Greeks called it *Phagedæna*. Juncker's definition of Cancer, may be applied to this degree of it.

of cellular membrane, with little fat, become, occasionally, the seat of this disease. It is, however, to be remarked, that the organs which are nearest to the heart, and those which are the most irritable; are more frequently the seat of Cancer, than those of similar structure, which are farther removed from the heart, and, at the same time, less sensible; and that when the disease has once taken place, its progress and ravages are proportioned to the sensibility of the part it occupies, and its vicinity to the heart.

§ XI. The material or proximate cause of Cancer, is to be sought for in the fluid, which, according to the laws of the animal œconomy, is distributed to the organs we have just now spoken of.---The experiments of Kauu Boerhaave, Monro, and others, having sufficiently proved, that the lymph has a constant, and exclusive communication with the cellular texture, and with the generality of the glands.---The lymph is therefore the proximate cause of Cancer. --- We are not to listen to what antiquity says on this cause:---we are to
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consider what she says of pituita, atrabilis, ferments, coagulating acids, &c. as pure fiction, founded wholly on the subtilty of Galen's Theory.---Nor are experiments more favourable to those who accuse the blood, as being the proximate cause of this disease (h).

§ XII. The remote causes of Cancer, are various.---Chlorosis, deficiency (i), or suppression of the menses, grief, long and profound meditation, indolence, &c. as being so many causes capable of inspissating the lymph (k) may very properly be enumerated

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amongst

(h) See M. de Senacs experiments, *Traité du Cœur*, p. 98. Tom. 2.—Becket de Cancro, p. 165; and § xxxi. of this work.

(i) Dionis (*Cours d'Operations*) had occasion to observe, that of twenty women afflicted with Cancer, fifteen of them were between forty-five and fifty years of age:—nor is it strange that Cancer should come on rather at this time than at any other.—The suppression of this excretion, is usually preceded by an increased density of the blood, and, consequently of the lymph.—The inflammatory crust, which appears on blood drawn at this period, proves this.

(k) The ingenious Mr. Gooch remarks, that tumors of the Schirrus, cancerous or strumous nature, proceed, originally, from

mongst the causes of Cancer. (1).---In general, every thing that tends to occasion such an inspissation, whether it be by diminishing the diameter of the absorbing vessels, or by any chymical means, by heat or cold, or other external or internal causes, will be liable to lay the foundation for Cancer; for, if the movement of the lymph is retarded, it will inspissate, and obstructions will be formed in the glands, through which it is to pass. Every body knows, that the pressure of hard bodies, falls, blows, &c. as immediately tending to produce these effects, deserve the first place amongst the remote causes of Cancer.

from lymph obstructing the glands, as he has proved to a demonstration, by experiments:—*Med. Observ.* p. 157. *

(1) Among the different ways in which the remote causes concur in the formation of Cancer, there is one, that is no less true than it is striking; and that is, the decrease of the insensible perspiration, and the superabundance of this matter in our fluids.—Whenever this excess of acrimony is met with, we may consider the existence of that inflammatory crust, mentioned in the last note, as certain.—This inspissation is very different from that which takes place in chlorosis and scrophula.

§ XIII. The cancerous virus is not to be accused of giving birth to this horrible disease :---we neither take it in with the air we breathe, nor with our food :---nor is it insinuated into the system either by blows or falls ^(m).---Is every thing, then, that has been said or published, on the subject of cancerous virus, to be considered as chimerical?---by no means.---There is, evidently, when the Cancer is in its third or fourth stage, a peculiar, ichorous matter, to which no person will refuse the name of virus, who observes the ravages it occasions.---But this ichorous matter, or virus, is formed within the Cancer itself; so that we are to consider it as the effect, and not as the cause of the disease.

§ XIV. It will be perceived, that the proximate and remote causes I have enumerated as producing Cancer, are equally applicable to every other lym-

(m) We shall enquire, in another part of the work, (§ xxxviii.) whether or not the cancerous virus is contagious and hereditary,

phatic tumour :---and, cancerous diseases, being evidently of a peculiar character, producing effects peculiar to themselves, and terminating in an extraordinary manner, it seems necessary to find out other causes than those we have mentioned.

§ XV. We have already said, that the lymph by being obstructed in its course, in a particular part, becomes the proximate cause of Cancer :--- it remains for us to enquire, how this fluid, when inspissated, and seemingly incapable of doing harm, acquires new energy, and becomes capable of so great a metamorphosis.

§ XVI. Although Cancer may fix its seat, indiscriminately, on all the soft parts of the body ⁽ⁿ⁾, its ravages, as we have before

(n) Wiseman saw the pericranium cancerous.—Forestus, the great angle of the eye.—Job-a-Meckren, the eyes.—Tulpius, the caruncula lachrymalis.—Wiseman, a *Cancer* around the ears.—Riverius, and many others, the nostrils—and cheeks.—Forestus, the chin.—Riverius the gums.—Ruyfch, the tongue.—Heister and myself, the breasts of a man.—

fore observed, are found to be more frequent in the glandular parts, which we know to be composed of a loose, cellular texture, and plentifully supplied with nerves and lymphatics.---Whatever may occasion the first impediment to the course of the lymph, whether it be the density of the fluid itself, the atony of the minute vessels, or external causes; the first obstacle being formed, it is certain that the *vis a tergo* will gradually add to these adhesions, while the rest of the fluid will pass off by the collateral vessels (§ xi.)---The lymph continuing to retain its morbid tenacity or density, the obstruction will gradually increase, there will be some degree of pressure on the neighbouring vessels, which will form new obstacles to the progress of the fluid: still, however,

man.—In the Edinburgh Essays, there is an account of a *Cancer* of the urinary bladder.—Other writers have seen the liver, the spleen, the pancreas attacked in the same way.—Stalpart, saw a woman who had a *Cancer* of the urethra.—Many writers describe a *Cancer* of the uterus.—Hildanus, saw a cancerous penis.—Turner, the anus.—Amatus Lusitanus, the legs, &c.

the tumour will increase in size, and harden by the reunion of these obstacles, till at length, an equilibrium is formed between the resistance of these reservoirs, and the power of the heart and arteries.---In this state, then, the disease is at a stand, or, at least, seems to be so.

§ XVII. It is in this stage of the disease, that we have sometimes an opportunity of destroying, as it were, the germen of the Cancer, by attempting to resolve it.---Some of the gums dissolved in vinegar;---fumigations with vinegar, evaporated over a slow fire (°): or warm water, together with a solution of soap and alkaline salts, joined to the use of internal medicines of a similar nature, have often very happily succeeded. But we are carefully

(°) Galen (ad Glauc) employed alternately emollients, and the vapor of vinegar, in discussing Schirrus:—and he assures us that several of his patients were so completely cured by this method, in a short space of time, that many people considered these cures as the effects of magic.—I have often adopted Galen's method, and with success.

to avoid all acrid and stimulating applications, which deceive the hopes of the physician, and add to the complaint, by exciting a greater flow of humours to the diseased part :---in short, we have seen inflammation produced by such a treatment, which, of all accidents, is the most alarming ; and thus the unhappy patient has been carried as it were at once to the full accomplishment of his ills.

§ XVIII. At this period of the disease, it sometimes happens that the *vis vitæ* remains, as it were, suspended, and does not carry the tumour to that degree of hardness which would seem capable of resisting afterwards to the most powerful remedies.---In this state, then, the obstruction seems still to belong to the class of mild tumours. But when the *vis attergo* has long continued, the tumour, by being thus incessantly compressed, acquires a degree of hardness which no remedy can remove, and which does not cease till the Cancer arrives at a state of ulceration, either open or occult.

§ XIX. The tumour, by its hardness, being thus deprived of all commerce with the general mass of humours, if we except, perhaps, some little degree of inhalation and exhalation; and perhaps, too, some sort of circulation through the larger vessels of it, it is impossible, from the constant and invariable laws of the animal œconomy, but that the stagnant lymph, and the reservoirs in which it is contained, must become subject to putrefaction, and thus degenerate into an ichorous matter :---We consider this ichorous matter as the true cancerous virus :---We shall therefore attempt to prove, that such a matter is generated within the substance of the tumour; and this shall be the subject of the next section.

S E C T I O N II.

*Of the Nature of the Cancerous
Virus.*

§ XX. Every body knows, that animal fluids become putrid, when at rest, and surrounded with a certain degree of heat.---It is therefore certain, that the humours which constitute the cancerous tumour, will become putrid.---Experiments do indeed prove, that a certain degree of fluidity is essentially necessary to putrefaction.---Dried flesh does not begin to putrefy, till it has acquired a certain degree of moisture.---This fact is universally known : --- and, indeed, the putrefactive process cannot actually take place without the action and re-action of the parts of the substance, which is to putrefy :---two circumstances that cannot possibly happen without a certain degree of fluidity. --- We are aware that the

ingenious M. le Cat attributes the whole process of putrefaction, to the escape of a *certain anomalous preserving spirit or principle*; but, as we wish to avoid all abstract causes in our enquiries, we will ascribe it to a state of warmth and repose.

C O R O L L A R Y I.

It naturally follows, from the principles we have laid down, that cancerous concretions, will be exempt from putrefaction, so long as the defect of humidity prevents altogether the intestine motion of their insensible particles :---and from these same principles, we discover why Cancers arrived at the second period of the disease, when they are so firmly concreted, prevent, by this hardness, the beginning of any spontaneous motion, and thus continue for a certain length of time, often during many years, without affording any uneasy symptoms.

C O R O L-

C O R O L L A R Y II.

It follows from the same source, that the moment the *vis a tergo* ceases, the matter which forms the obstruction, will recover some degree of fluidity, and the spontaneous intestine motion will be liable to take place.---Guided, therefore, by this corollary, we may easily conceive the inconveniences which emollient applications will occasion, and how improper, damp, marshy situations are, for a cancerous patient.---These ill effects have been proved by experience.

§ XXI. These corollaries agree perfectly with the phenomena of Cancer.---When the concretion has acquired a certain degree of hardness, it occasions, in this state, only the slight uneasiness which the weight of the tumour, or its pressure on the neighbouring parts may be supposed to excite. However, it begins to putrify after an undetermined space of time ; and here is the method I take to explain the inevitable phenomenon of putrefaction: it is founded
ed

ed on the principles I just now laid down.

§ XXII. It is repugnant to reason as well as to facts, to suppose, that the whole cancerous mass is impenetrable to the vital liquid: some minute parts of the tumour are indeed placed entirely out of the reach of the circulating fluids.---The whole of the circumference of the tumour, however, and some parts beyond the circumference, are still affected by those fluids. After a certain time, the minute internal parts, which are not affected by the circulating powers, become moist, either by immediate inhalation from the parts that are contiguous to them: or by the rupture of some adipose cell, or of some lymphatic vessel, which pours into them the fluid it contained:---or, perhaps, by the liquefaction of the lymph itself by the vital heat, in a similar way to what we know takes place in the egg during incubation, and this merely from the warmth communicated to it by the hen.---In whatever way, therefore, this humidity is introduced, it has no sooner taken place, than

than the intestine motion of the insensible atoms, begins within the tumour.

§ XXIII. This spontaneous motion being once begun, never ceases, either wholly or in part, till the whole mass of humours, which is thus excluded from the circulation, is transformed into a putrid, acrid, and corrosive ichor, which is truly the *alkalescente volatile* of Gaubius (p).—This putrid ichor is not always of the same energy, in different patients, nor in different stages of the disease.—It is not easy to foresee to what degree of malignity it will proceed:—in general, however, we may remark, that this malignity will be greater or less, in proportion as the tumour has been a longer or a shorter time in forming, and has acquired more or less hardness.—Much will depend too, on the patient's habit of body, previous to or after the attack.

(p) Institutiones Patholog. § 310.

§ XXIV. The inspection of dead bodies, in a state of putrefaction, has proved to us, that the nerves and vessels of every kind, putrefy with difficulty, while the cellular texture, the lymph and the other humours easily become subject to it.—It will therefore follow, that the fluid and cellular parts of the cancerous tumour, may, perhaps, be advanced in a state of putrefaction, while its vessels and nerves still preserve their structure, and continue in some measure, their functions.—From this different disposition to putrefaction, which we observe in these several parts of the tumour, we may easily explain the return of the pain at the beginning of the third period of the disease.—It would seem, that while the nerve continues to be compressed by the parts which surround it, it feels no irritation, nor, of course, any pain, as there is as yet, no acrid matter to excite it :—and this seems to be the cause of the patient's ease during the second period.—But when the disease is advanced to its third stage, the nerve becomes disengaged from pressure, is affected by the putrefactive process, and transmits
to

to the brain a disagreeable impression, and hence the pain.—It is not usual for this pain to come on suddenly.—A certain sensation of heat and itching, is the usual forerunner of it; and when these feelings seem to arise from the middle of the tumour, they announce with certainty, that the pain is at hand, and that the Cancer is passing from the second to the third degree.—If, on the other hand, this heat and itching is felt only on the surface of the skin, which covers the tumour, it brings with it no unfavourable presage, and usually gives way to antiphlogistic and anodyne applications:—particularly to preparations of lead (q)—

E The

(q) Since the first edition of this work, I have observed a third seat of the pain, in the cellular membrane that surrounds the tumour. It is difficult to distinguish between the pain that comes from this last seat, and the pain that is derived from within the cancerous mass, notwithstanding all the information that the most intelligent patient is able to give.—With a view to acquire some knowledge in a matter which is of so much importance, both to the diagnostic and prognostic, in these cases, I apply a blister immediately under the tumour, which I keep open for some time, by mixing a little euphorbium with the

The power, which is restored to the fluids, of penetrating the vessels of the tumour, is the cause of its increase in the third stage; and in the fourth, of its disposition to hemorrhage.

§ XXV. As every reader will not allow, perhaps, that animal substances are capable of attaining this degree of putrefaction and malignity in a living state, it seems necessary to prove it by experiments, and observations.—I will, therefore, point out some of the properties of putrid fluids, which, I believe, will throw a considerable light on the nature of the cancerous virus.

§ XXVI. Baron Haller informs us, ^(r) that the vapor flowing from a pestilential

the cerate at each dressing. — I prefer euphorbium to cantharides, as being less irritating, and less likely to be absorbed.—If the pain is derived from within the mass, it will not remit, notwithstanding the discharge that may be produced by the blister; whereas, if it is seated in the cellular membrane, it will cease entirely, at least, for some days.

(r) Elem. Physiolog. Tom. 2. p. 86.

bubo, threw down, as if it had been by lightning, an over curious physician who wanted to examine it too nearly.—At the siege of Breda, the plague being in the town, the blood of those who died, did not coagulate, but appeared livid and fœtid (s).—Morton speaks of a woman attacked with a malignant fever, whose blood, as it flowed from a vein, was so fœtid, that the surgeon who bled her, together with the assistants, fainted (t).—In the glands of a patient, who died of the venereal disease, an ichorous matter has been found, which, from its acrimony, could be compared only to aqua-fortis (u).—The infectious and noxious odour diffused by parts in a gangrenous state, while the strength and vital heat of the patient continue, are well known to all who practice surgery.

(s) Vaudermeye, de Morbis Bredanis, p. 14.

(t) Morton, Apparatus Curat. Morborum Universalium, p. 11.

(u) Masson, de Cavi Offium.

§ XXVII. All these observations prove, that the putrefactive process, as well as the putrid liquor which is the result of it, may take place in living bodies, and in parts that are excluded from the air:—but that no doubts may remain on this head, it will not be amiss to obviate any objection which may be derived from the air's not having access to those parts.

§ XXVIII. The experiments of Hales, Pringle, Macbride, and others, have sufficiently proved, that it is not the access of the atmospheric air, but the disengagement of the fixed air, which is essential to the putrefactive process.—It has been sufficiently proved, that the elements of bodies are not disengaged from each other, so as to be capable of spontaneous motion, till this fixed principle, which forms as it were their union, is set free,—Macbride has demonstrated, that animal flesh putrefies more readily under the exhausted receiver of an air-pump, than in the open air ^(w)—The access of atmos-

(w) Exp. Essays.

pheric air, is, therefore, not necessary to this process; and it would be superfluous to bring more proofs of a doctrine which is now universally received, viz. That the escape of the fixed air constantly precedes putrefaction.

§ XXIX. Having thus proved from analogy, that the fluids, which form the cancerous tumour, must, necessarily, become subject to putrefaction.—It now remains for us to demonstrate its existence.

§ XXX. He must have seen but little of the practice of surgery, who does not know, that in the third and fourth stages of Cancer, we usually find, within the cavity of the tumour, and commonly in its center, one or more cavities, filled with a foetid, putrid, and exceedingly acrid ichor (x).

Deidier

(x) Putrid humours to which the atmospheric air has had no access, altho' exceedingly acrid, are not so foetid as they might

Deidier (y), Harris (z), and other writers, have already remarked this.—The fact is confirmed by the observations we ourselves made, at a time when we were perfectly disengaged from any hypothesis.—A woman who lived in the country, aged thirty-three years and of a healthy appearance, had a cancerous tumour in one of her breasts, which was extirpated.—This tumour had made so great a progress in the space of three years, that lancinating, burning pains, announced the opening of the tumour to be at hand.—While this tumour was still in its place, there were some little parts of it which afforded less

might be expected to be; and the reason of this seems to be, that the fixed air, when confined within so small a space, is not so completely disengaged, but that some small part of it still remains and keeps up a certain degree of cohesion, between the elements:—hence it is, that the foetid oil and alkali do not escape into the air, as it were by torrents, and that the humours thus sheltered from the contact of the air, are less foetid.

(y) Des tumeurs, p. 103.

(z) Dissert. X. p. 168.

resistance to the finger than the rest.—I opened the softer parts with precaution, after having extirpated the tumour, with a view to collect the fluid I hoped to find in them, if authors were to be credited. I opened five of these, one after the other, and found them filled with a clear, yellowish liquor, which I collected (though not without some disgust) by means of a sponge, which had previously been wet and well pressed; and on putting this liquor into a glass, I found it weighed five drachms.—I then cut the rest of the tumour in pieces, having previously divested it of its fat and cellular membrane; and then pressing out the fluid juices it contained, I collected as much of these, as weighed an ounce and five drachms.

§ XXXI. I divided the first of these fluids, which I have observed weighed five drachms, into three parts.—On one of these, A, I poured spirit of wine; on another, B, vitriolic acid; and the third, C, after being mixed with water, was placed upon the fire;—but in neither of these experiments was there any
mark

mark of coagulation.—The third part of the liquor, no sooner began to feel the warmth of the fire, than there exhaled from it, a truly alkaline vapor, if my smell did not deceive me.—Becket has an observation in this way, which so much resembles mine, that I shall beg leave to quote it.—“We expressed, says he, the
 “juices from a cancerous tumour into a
 “spoon, which we placed over the fire,
 “and soon there exhaled from it a fine
 “vapor.” (a)—He says nothing, indeed,
 of

(a) The ingenious author does not seem to have seen Becket's works, as he refers to an *Essay on Schirrous tumours*, published by Richard Guy, in which there is this quotation.—Becket's *Cure of Cancers* was published in 1712, in 8vo.—In this work he contends, that the cancerous virus is neither corrosive, nor always contagious:—but his chief aim seems to have been to prove, that he was in possession of a topical application, which would remove *Cancer* without injuring the sound part.—Guy's book was likewise written to recommend a nostrum:—both these remedies were probably the same as *Plunket's*, which has long been kept a secret in Ireland, and the chief excellence of which is, that it does not extend its operation laterally:—it is a very powerful escharotic, and causes most acute pain. Doctor Macbride believes the composition of this remedy to be as follows:—“Take of the leaves and stalks of the *ranunculus flammeus*, two pugils; of those of *cotula foetida*,
 one

of the nature of this vapor, but its precipitate flight seems to prove it to have been of an alkaline nature.

I made a similar experiment with the matter contained in the second vessel, B. and it in some degree coagulated; less, however, than the waters of the amnios do, when exposed to the action of mineral acids and fire.—Hence I suspected, that the fluid in this experiment, was to be considered as lymph, which had, in some measure, entered into the putrefactive process.

I repeated, some months ago, the same experiments, and the event was entirely the same as with the former ones.—The matter, in these last trials, was taken

“ one pugil;—white arsenic, two drachms; flowers of sulphur, one drachm;—mix the whole, and rub them into a powder, which being made into a paste, with the white of an egg, is applied to the cancerous part, which it is meant to corrode; and being covered with a piece of thin bladder, smeared also with the white of an egg, is suffered to lie on from twenty-four to forty-eight hours:—afterwards the eschar is to be treated with softening digestives, as in ordinary cases.”—The reader will perceive, in the course of this work, how dangerous the use of such a remedy as this may be in many cases, and with how much caution it ought to be applied in all.—*

F

from

from a schirrous tumour of the thigh, and from a Cancer of the breast in the third stage, which was taken from a woman, who died suddenly :—it was extirpated about eight hours after her death. On this occasion, I added a new experiment to my former ones, which I shall describe hereafter.

I did not omit noticing the appearance of those tumours : — in some parts they were soft; and in others, had the hardness of cartilage.

The colour of the substances, which composed these tumours, was, by no means, uniform, being in some places white, and in others, of a dark orange, violet, and even black complexion. These masses, if we except some few remains of vessels, did not afford to the eye any thing like an organic structure, and, when cut in pieces, and thrown into boiling water, diffused an odour, much like that of *hepar sulphuris* ^(b).—Some of them, indeed, sooner than the rest.

§ XXXII.

(b) Mr. Gooch observes, that having dissected out several
Schirrous

§ XXXII. We are, therefore, not to be surpris'd, that all the phenomena of putridity are to be met with in Cancer :— it breaks down all the union of animal matter :—it metamorphoses into an acrid sanies, which no acid can coagulate, the humours which are, in other respects, coagulable ; such as the blood, the lymph, the albumen ovi, the liquor of the amnios, &c. --- it melts down the fat ; it at first softens, and afterwards dissolves into mucilage, even the bones themselves. The principal phenomenon of beginning putrefaction, consisting, as we have already observed, in the extrication of the fixed air (c).—The Cancer, in its third or fourth stages, is likewise observed to soften, (§ xxii.)---its organisation

Schirrous tumours, he found their interior substance to be like an hard unripe apple, thin slices of which, being boiled in water, had an horney appearance when cold and dry, and the water they were boiled in became glutinous.—*Med. Observ.* p. 152.*

(c) Sir John Pringle's Appendix, containing exp. on septic, antiseptic, &c. page 48, 49. and seq. and Macbride, in different parts of his *Exp. Essays*.

is destroyed (§ xxi.) — it is gradually changed into a mucous matter; and thus the little cavities we have described, are formed (§ xxx.)—these cavities are filled with this sanies which no acid can coagulate (§ xxxi.) and which is so dangerous to man (§ xxxix.):—add to all this, that the air disengages itself from within the tumour.

§ XXXIII. Although it is not easy actually to demonstrate the escape of this fixed principle or *gas*, when the Cancer begins to submit to the process of putrefaction; yet I am able to give one proof, which is not without its force;—it is as follows:—The woman who is the subject of the second observation, died when she was supposed to be in perfect health:—the body was opened a few hours after death, and the cellular membrane around the cancerous tumour, the exterior membrane of the lungs, and the lungs themselves, were filled and distended with air, which had disengaged itself, so that one would have thought they had been thus blown up by design.—Although

though it is impossible to assert, that this phenomenon had existed during the life of the woman, it would, by no means, be unreasonable to conjecture it:—besides, the disengagement of air, from the solids and fluids of living animals, its flight and passage from a fixed to an elastic state, are clearly proved by the emphysema, which is a frequent attendant on abscesses, putrid ulcers, and the Cancer itself:—by the bubbles of air, which are mixed with the pus and ichor in all these; and lastly, the fœtid vapor, which has been discharged, with some degree of explosion, from a bone (d) in a state of putrefaction.

§ XXXIV. Lastly, if the reader should not be disposed to have sufficient faith in the proofs I have here offered to him, I am persuaded, that if he will respire the infectious odour, exhaled by a Cancer, in a state of ulceration, he will be convinced of the truly putrid state of the cancerous virus.—We remind him, however,

(d) Halleri Physiolog.

that such an experiment will be a dangerous one.

§ XXXV. The ichor, or cancerous virus, has not always the same aspect nor the same colour. — We have seen it of a dark red, greyish, orange, yellow, and green colour.—This variety, which is from mere chance, and which would be inexpressible by any other hypothesis, confirms our etiology.—A number of observations prove, that animal substances putrefying in a situation excluded from the atmosphere, afford a reddish coloured sanies, which, when exposed to the air, becomes brown, black, yellow, and even green, towards the close of the putrefaction.

§ XXXVI. I therefore flatter myself with having incontestably proved, that the cancerous virus, does, in no respect, differ from the sanies produced by every animal putrefaction, to which there is, occasionally wanting, either the final disengagement of the fixed air, or the liberty which is necessary to the intestine motion of the

the *moleculæ*, or to the union of those particles which have an affinity with each other. Although it is not possible for us to determine, with precision, concerning the energy of the cancerous virus, yet we may venture to assert with confidence, that it will be greater or less, in proportion as the heat in the center of the tumour is more or less considerable.—When this heat is languid, the *moleculæ*, which compose the substance of the tumour, are separated with difficulty, and the intestine motion is less active.—All this, however, is essential to the formation of those acrid, irritating, and caustic particles, which are generated in Cancer and produce all its ravages.

§ XXXVII. We shall not think it necessary to say much in refutation of those, who have asserted that the cancerous virus is of an acid nature.---A false appearance of truth seems to have deceived them, even while they fought it in their experiments. --- An earthy substance, say they, effervesced with this virus :---this earthy substance must then, either have
been

been truly absorbent, and have given this appearance of effervescence, by its readiness to drink up the humidity ; or was a saline earthy compound, and then a true effervescence might indeed be produced, when the volatile alkali of the virus came to attack the acid of the earth, or when the same acid drove out the weaker acid of the sal ammoniac, mixed with the virus.---We are told, besides this, that the cancerous virus, has tinged the syrup of violets of a red colour ; but who does not see, that the existence of an acid which this colour supposes, is entirely destroyed by the odour, the fœtor and all the other qualities of the cancerous virus ? and, indeed, the experiments which have been often made on the cancerous virus, and which have been repeated by a late writer (e), prove that the limpid liquor which flows from a cancerous tumour, has effervesced with the vitriolic acid : our own experiments have likewise proved

(e) Essay on *Schirrous* tumours, by Richard Guy.

this,

this, though we confess that the effervescence was somewhat obscure.

§ XXXVIII. Before we terminate our researches concerning the cancerous virus, we wish to enquire, whether or not this vice may reasonably be considered as hereditary and contagious.

It will not be denied, that the greatest number of cancerous patients, are born of parents who were free from this complaint.—The cases which are opposed to this rule, are few.—No one will seriously assert, that the patients, whose parents were free from this complaint, can be infected by an hereditary taint; and there seems to me to be no other foundation for supposing it of the others;—for when the cancerous tumor has attained that degree of malignity, at which all the humours become vitiated, a necessary condition to the entailing an hereditary taint, I much doubt, I say, whether, in this state, any patients ever laboured effectually for the propagation of their species: but let us suppose that this has happened; the fluids of the child, might, in this case

at most, be expected to have a disposition to purid crasis, which we know would be insufficient to the formation of Cancer.—It will be argued, perhaps, that Boerhaave knew a family, all the descendants of which became, when of a certain age, jaundiced, and at last died dropfical, in spite of all remedies ;—and, on opening them, the liver was constantly found to be in a schirrous state.—With all due deference, however, to that illustrious man, I am inclined to think, that this hereditary vice was to be sought for in the solids :—We know that the Cancer more frequently attacks some organs than others (§ x.), and amongst these, the liver is observed to be very subject to it :—We know, besides, that there are particular conformations, peculiar to, and hereditary in, not only certain families, but even entire races of men.—Let us suppose then, that the first of the family, of which Boerhaave speaks, had the liver so formed as to favour the generation of Cancer :—it is certain that he might have transmitted this conformation to his children, and consequently all the individuals of
that

that family might have perished by Cancer, and all this independent of the transmission of the cancerous *virus* itself.—We conclude, therefore, that this *virus* is not hereditary.

§ XXXIX. With respect to the contagious nature of this virus, it must be acknowledged, that either externally or internally applied, it is capable of infecting the healthiest of men.—The cancerous miasmata, taken into the system with the air, the saliva, or in any other way, will inevitably occasion a putrid disposition both of the solids and fluids; and if, when the humours are once infected with the vice, the glands become swelled and hardened, there can be no doubt, but that they will more easily degenerate into Cancer, than if the patient was otherwise of a good habit of body.—It is not less certain, that the immediate touching of the virus, may, by its being absorbed, give rise to cancerous ulcers.—Tulpius relates, that a misfortune of this kind happened to a man who sucked the cancerous breast of his wife, with the

hopes of relieving her :—but there soon came on a cancerous affection of the lower jaw, of which he died (f).—A similar misfortune happened to a Mr. Smith, who was formerly surgeon to St. Thomas's Hospital, in London, and whose imprudent curiosity had led him to taste the fluid proceeding from a cancerous gland, which he had just extirpated.—The very acrid and fœtid taste of this tumour continued to be so irremoveably fixed to his tongue, that an almost perpetual vomiting was brought on, and this was followed by a marasmus, of which he died.—Dr. Bellenger (g) affords us another example in the same way.—His wife died of an ulcerated Cancer, the virulent odour of which, so imprinted itself on his nostrils, that he perished of the same disease (h).

§ XL.

(f) *Observ. Medic. Lib. 4. p. 153.*

(g) Both this case, and that of Mr. Smith, are related by Harris in his *Differt. Med. Chir. p. 168.*

(h) There is a very curious case of this kind, related by Mr. Gooch. A gentleman's wife, says he, consulted me
about

§ XL. I will relate here an experiment, which I myself made with the cancerous virus. — I procured about two drachms of it from a cancerous breast, and introduced it by means of a syringe, into a small wound made in the back of a dog, I covered the wound with a plaster and bandage, and in three days removed the dressing: the retraction of the skin afforded an ulcer, which already afforded a very disagreeable smell: it was of a dark violet colour, and the parts all around it were emphysematous.

about a most alarming complaint, contracted by inadvertently putting a pipe into her mouth, and blowing it clean, immediately after her sister had used it, who had a cancerous ulcer, passing quite through the mouth under her lower jaw. She was almost instantly sensible of a twinging near the tip of her tongue, and, soon after, in her lips, and most parts of her mouth. — In a short time, her husband complained of the like sensation in his lips, which proceeded only from kissing her. — The husband, who after two years, went from Brussels to Paris, to consult the faculty there, died. — The lady returned to England, and placed herself under Mr. Gooch's care, who succeeded in the cure, by a long continued use of the sublimate, assisted by some other medicines. — See his Med. Obs. p. 145. et seq. *

I covered it again with the same plaster, and in forty-eight hours, opened it again for the second time. — The effects were then become more violent. — The whole skin, from the head to the tail, was completely emphysematous : — A little ichorous, blackish matter flowed from the wound. — The eyes of the animal were vivid, and he seemed to have great thirst: in this state the poor creature was perpetually howling. ---at length my maid, disgusted by the stench of the ulcer, and softened by the cries of the animal, put an end to his life, and thus prevented my observing the ultimate effects of this disease.

In the course of this section I have aimed at proving the identity of the cancerous virus, and of the putrid ichor. I have neither omitted, nor unfairly related any experiment or observation, which seemed repugnant to my own opinion : and, if I have not entirely removed every subject of doubt, I hope it will be allowed, that I have, at least, arrived at probability. ---I flatter myself, that they who judge of things deliberately
and

and reasonably, will the more readily favour the opinion I have ventured to prefer, when they consider that it is founded on the very essence of the disease, and on the most established laws of the animal œconomy, and that it is sufficient for the explanation of all the phenomena of Cancer, to which we shall devote the following section.

S E C T I O N III.

Of the Effects of the Cancerous Virus.

§ XLI. The effects of the cancerous virus are either particular or general ones:—that is to say, it either confines its ravages to the diseased part, or infects the whole animal œconomy.—I will begin with the first of these:—

First. The cancerous virus included in the little cavities of this tumour, pricks and irritates those parts which it touches, and which are no longer benumbed by compression as before:---hence, a degree of pain, which is more or less profound, according to the seat of the ichorous matter:---and hence the burning, pungent, lancinating pain, as if excited by the pricking of needles, together with an acrid, burning heat;---all which are, as it were, peculiar to Cancer.

Secondly.

Secondly. The virus brings into putrefaction with itself, the parts which inclose it :—What the leaven is to the flour mixed with water, the putrid ichor we are speaking of, is to the solids and fluids of animals.—This property of leaven is proved, by the gangrene from external Cancer ; by putrid ulcers, which spread gradually to all the neighbouring parts ; and by the phenomena which are produced by the absorption of putrid ichor : It is farther proved by the experiments of the most celebrated men ^(h), that threads, impregnated with putrid sanies, have powerfully excited the putrefactive process.

§ XLII. Thirdly. The surface of the tumour becomes unequal : the more the vessels preserve their powers, the more they are capable of receiving an increased flow of the fluids ;—and as pain, from a known law of the animal œconomy, ex-

(h) Pringle, Exper. 18. Macbride 120.

cites a greater afflux of humours to the suffering part, it is not strange, that certain vessels or segments of vessels, should become more dilated, and more tumid than others : and hence the knots and inequalities of the tumour.—To this cause of the knotty inequalities, may be added, the softening of the little spots I have so often mentioned ---The matter contained in these, is converted to mucilage, while the neighbouring parts, continuing to preserve their former hardness, occasion the solid protuberances which we feel on handling the tumour.

§ XLIII. It is not unusual to see little cancerous secondary tumours, forming, after a certain time, in the neighbourhood of the first:—in Cancers of the breast and face, the glands of the axilla almost constantly swell, harden, and become true Cancers (i).

These

(i) Whenever the axillary glands become thus affected, we may be assured that it is from absorption, and that the *Cancer* is advanced to its third stage, although the patient should as yet have felt no pain, or other symptoms of an occult

These secondary Cancers differ much from the primitive one; for the putrid crasis exists in them from their very origin:—they are truly occasioned by absorption, and the virus thus carried by the lymphatics to those neighbouring conglobate glands, irritates and determines to them a greater afflux of fluids, and thus produces the tumefaction and obstruction which follow.

§ XLIV. Fifthly. The cancerous virus inclosed within the tumour, gradually erodes the skin which covers it, and at length pierces it by very small openings, through which the matter first flows drop by drop.—These little openings gradual-

occult *Cancer*; and therefore, if a surgeon should at this period of the disease, extirpate the glands of the breast, and leave those of the axilla, he may be assured that the patient will fall a victim to the disease.—In many of the cases related by M. Storck, as having been cured by the cicuta, and supposed by him to be *Schirri* of the breast, this induration of the maxillary glands is noticed; so that if the cicuta had really merited the praises he has bestowed on it, these cases would have proved more than he thought of proving.*

ly increase by the erosion, and at length afford an outlet to all the matter contained within the little cavities with which they communicate.---The pains are then, in some degree mitigated, and the hopes of the patient begin to revive ; but alas ! this remission does not last long, for soon the symptoms increase again, and the torments of the patient become more horrible than ever. --- This exacerbation is chiefly owing to the free escape of the fixed air. This is now easily disengaged and no longer by being confined, serves to moderate the activity of the putrefactive process.---The partitions which separated the little openings of the Cancer, become gradually eroded and at length there is formed one large ulcer.---The more the outlet to the fixed air is enlarged, the more rapid in its progress is the putrefactive process, and the greater is the pain:—and this because the Cancer softens as it putrefies ; and thus the pressure on the nerves being gradually removed, and the putrid *spiculæ* having a greater surface to act upon, the impressions of pain, are more powerfully transmitted to
the

the brain. — These circumstances, then, concur in rendering the pain more pungent and more extensive.

As to the causes of the turning back of the edges of the cancerous ulcer, of the diversity of its colours, and of the various enlargement of the blood-vessels on its surface; all these seem to be capable of very easy explanation from the theory we have laid down.

I shall therefore, proceed to inquire, why a Cancer affords so small a quantity of ichorous matter.—As this is a very interesting phenomenon, I wish I may explain it satisfactorily.

§ XLV. Sixthly. There are many local ulcers which discharge but little ichorous matter. The gangrene which so often attacks old age, furnishes so little, that it has been named *dry gangrene*;—nor is this strange: — these ulcers very often discharge only the moisture which was peculiar to the part before its ulceration. — The same thing happens to the Cancer.—The ichor it discharges is derived from within itself. — The greatest
part

part of, perhaps, all its vessels being impervious, there is no circulation through its substance. — The hemorrhages which sometimes accompany the discharge from the Cancer, are to be attributed to the cellular membrane which invests the tumour. — This source, then, being once known, we easily discover why the discharge becomes more considerable, when the cancerous mass is consumed, than when it was entire, though so compleatly ulcerated. — To this first cause we may likewise join the spasm, which sometimes restrains the discharge, and likewise causes the sinuses we observe in the ulcer; the absorption of the virus; and the uneasy constriction of which the patient complains, and which, if the Cancer is in the breast, we must observe in the neck, face, arm and shoulder, but chiefly in the neighbourhood of the disease. After the amputation of a cancerous breast, even when the wound was healed, I have seen the whole breast, and region of the diaphragm attacked with a most frightful spasm. — The unhappy patient cried out, that she was pressed, as it were, with iron chains.

chains.—Fourteen days after this symptom appeared, she died convulsive.

§ XLVI. Seventhly. It is a constant fact, that laudable pus never flows from the bottom of a cancerous ulcer, although its borders sometimes supply a pus like matter which is disagreeable to the smell.

For what reason is it that the cancerous ulcer never supplies a laudable pus? This can be best answered by him who knows the nature of pus.—Pus is an homogeneous fluid, differing but little from the natural fluids:—it is composed of serous and lymphatic and oily juices, and is a fluid not to be suspected of corruption, although it soon enters into it, if it meets with a putrid leaven or sojourns long in a warm situation. — It is therefore clear, that a Cancer can never form a single drop of pus of a good quality, and if it did form it, is it not evident that it would soon degenerate into a putrid sanies? Who will ever imagine that from a putrid source there can flow a mild and pure liquor?

§ XLVII.

§ XLVII. Eighthly. Although the *cancerous virus* does not give birth to what are call the *roots of the Cancer*, it seems right to arrange and consider them with the other phenomena of the disease.—On the subject of these *roots*, the learned and venerable ancients seem to be silent.—It was M. Gendron (k) who first saw them in removing the eschar of a Cancer to which he had applied a caustic :—he was so much struck with this novelty, that he did not hesitate to affirm, that these roots constitute the true nature of Cancer ;—and almost all authors since him, from their own experience, or the testimony of others, seem to have considered them as essential to Cancer (l).—I shall therefore,

(k) Recherches sur le Cancer, chap. 3. p. 25.

(l) See Hildanus Obs. 84. Cent. 3. Mr. Gataker however has, I am told, denied the existence of these roots. I speak of the *true roots* ;—for, as to the *false roots*, or vessels filled with a black blood, Galen (Comment. in Aphorism. 38.), Ætius Cap. 43. and many others have mentioned them.

in a few words say what is to be thought of them.

§ XLVIII. It is impossible for a hard mass, impervious throughout the greatest part of its substance to the vital fluids, to continue in the living body, surrounded by vessels of every kind, without occasioning an enlargement, both of those which penetrate its substance, and those which appear on its surface.—If this happens in the larger vessels, the blood is repelled from the obstructed part into the neighbouring ramifications, but as some part is continually returning back, the obstruction goes on increasing, and the vessels, from being hollow, become solid, and at length ligamentous, or at least, have the appearance of being so.—If this happens in a lymphatic vessel, from which the fluid is not so easily disengaged, only the more fluid parts, perhaps will be pressed out: but in whatever way this is done, these vessels will appear like minute filaments. The nerves, on account of their minuteness, do not seem to deserve to be ranged amongst the roots of the Cancer.—The

ætiology of these roots being thus explained, we shall not be surprized to see
*“ hard, white and dense filaments extend-
 ing from the Cancer to the neighbour-
 ing parts.”* (m)

After having given the name of roots to these filaments, it was a thing of course to pretend, that after the extirpation of a Cancer, it germinated afresh, if any of these roots were left.—Baron Van Swieten has fancied he has proved this by a number of examples (n). It is a matter of no little importance to point out what is true and what is false in this opinion; and this I shall attempt to do.—The reader will, at least, praise my efforts here, although he may not be satisfied with my success.

§ XLIX. It has been proved, that the putrid ichor, the existence of which has been already demonstrated in the Cancer,

(m) Gendron, in the work already cited.

(n) In Aphorism 504.

occasions the degeneration of all the parts it impregnates.—As the life of the parts becomes more languid, the less do they resist to putridity.—After the amputation of a Cancer, its roots continue to preserve the principle of putrefaction which they have received ; and when, after this amputation, the wound becomes inflamed, and its heat is increased, these parts advance more rapidly towards putrefaction, than others, which are at a less distance from the sound and healthy parts of the system :—so that while these latter ones remain in a natural state, the others, *i. e.* the roots, putrefy, become cancerous, and of course, either renew the former Cancer, or gradually form a cancerous ulcer.—

But to suppose that cancerous tumours are renewed from these roots, like branches of a tree from the trunk, is to suppose what is wholly repugnant to the laws of the animal œconomy: — for the vessels which compose these roots have lost their natural powers, their elasticity, and organisation, and with these their power of germinating, so that they have only one

faculty remaining, which is that of being converted into a putrid sanies :—hence it follows that the asseration of those celebrated men is to be taken in a figurative sense, and then it is true ; — for in a literal sense it is not only false, but absurd.—

It may be attested from the observations that have been made by different writers that these roots shew themselves very rarely, and always in old Cancers.— I am inclined to believe, however, that their existence is more frequent than we are aware of ; —it is true indeed, that in cases they will be found to be very minute.—

But there is a question arises here.— Why do we see the extirpation of Cancer so often succeed when performed in time, although some of these roots remain ?— The answer to this is by no means difficult.—When we extirpate a Cancer, that is in a too advanced stage, its roots are already infected with the disposition to putrefaction, and will certainly become cancerous :—whereas, when the Cancer is a recent one, this disposition has not been
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communicated to the roots, and they are consequently not endued with any energy to renew the complaint, after the extirpation of the tumour itself:—we therefore see clearly, why, and in what circumstances *a Cancer, unless entirely extirpated with its root and seed, becomes exasperated, spreads itself into the internal parts, generates others, and increases those which are already formed* (o).

§ L. Ninthly. Amidst the horrible phenomena of cancerous diseases, the erosion, by means of which the ulcer makes so rapid a progress in destroying all the parts around it, seems to claim the first place.—It is unfortunate that this important phenomenon has been as yet satisfactorily explained by no author.—All of them, instead of a mechanical explanation, give us a number of words void of meaning.—They all tell us, with a wonderful confidence, that a Can-

(o) Ni enim cum radice et semine integre extirpari queat, asperabitur, ad interiora recurrit, alios generat, factos auget. Boerhaave Aphorism. § 504.

cer corrodes in this way, as it spreads itself, only because the ichor which it affords is acrid, corrosive and caustic.—Although I do not flatter myself with having altogether penetrated this mystery, I cannot avoid offering here some ideas which are the result of exact observation, and long contemplation of the subject.

§ LI. We have already said, that the organs which are the seat of putrefaction, begin by softening themselves; and then losing their organisation, become changed into a viscid oil. (§ xxiv.)---We have likewise proved that putrefaction is essential to Cancer (ibid.)---The particles of the cancerous tumour, therefore, which have undergone this degeneration, being deprived of their organisation, can neither afford a passage to the fluids, which shall be carried towards them with impetuosity, through the segments of vessels which still remain entire; nor can they resist them, because they are softened, and are of course, deprived of their natural powers:---whence it follows, that the softened and diseased parts of the vessels,
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being separated from the sound ones, or at least, from those which are nearer to the healthy constitution, will become mixed with the sanies already in the ulcer, and there very soon become subject to the putrefactive process.---The cancerous virus gives to every thing that it touches a malignity similar to its own.---It therefore follows, that the extremities of the vessels from which the corrupted parts have first been thrown off, will become softened and corrupted in their turn; and hence it is, that erosion will be constant and continual, unless the whole state of corruption be removed at once.---

Tenthly. It is easy to explain from this theory, why the erosion advances sometimes more rapidly than at others; and why irregularities in diet and inflammation, constantly hasten its progress. --- The inflammation is increased, first, because parts of animal bodies deprived of life, and exposed to a degree of heat, between 32° of Fahrenheit's thermometer and 92°, become putrid sooner or later, in proportion, as the heat is nearer

nearer to 92°.---Secondly, because the impetuosity of the fluids, which is determined towards the diseased parts, and which are impervious, increase with the inflammation: --- with the same facility we may deduce from this theory, why the degeneration of the *Schirrus* into the third or fourth degree of Cancer, is more to be apprehended in proportion, as the disease is nearer to the heart, and of course more copiously supplied with vessels; and why, when it is advanced to those stages its ravages will be proportioned to those same causes. --- The slowness and celerity of the erosion are derived from the same source.---Every body, therefore, will perceive the influence of improper regimen in cancerous diseases, and will easily be able to explain why exercise, together with heating aliment, liquors, medicines, &c. are so injurious to patients, who are thus affected.---In fine, the same reason will serve to explain why the disease soon returns, and so soon gains vigour, after the extirpation of a Cancer, if the least infected root is suffered to remain,

Eleventhly.

Eleventhly. We wish the reader, however, not to infer from the theory we have laid down, that a Cancer when eroded by the sanies, as it were to the quick, must at length be consumed by its own powers; for whilst a putrid portion is separating in one part of the ulcer, a similar separation is going on in another. — It sometimes happens, that entire portions are separated at once (p), but this, is by no means, a frequent event.

I have no doubt, but that if the total separation of the cancerous eschar took place at once, a laudable suppuration might be the result; and even the recovery of the patient, provided we could overcome the cancerous diathesis.—I am inclined to think, that it is in this way that we are to explain the spontaneous cure of some Cancers, the histories of which, I have a confused idea of having either read, or heard related.

(p) Juncker, p 321.

§ LII. Twelfthly. The erosion constantly advancing, at length attacks even the bones, and renders them dry, friable, and disposed to break, as it were, of their own accord.

The college of surgeons at Paris, when they undertook to explain this phenomenon, thought it was sufficient to suppose the virus to be carried into the bones (q). The problem, however, has hitherto remained without solution. — If authors appear to us not to have attained the end in view, it is because amidst their complaints against the cancerous virus, they do not seem to have observed that similar affections of the bones take place, more or less, in all chronic, putrid diseases: as for example, in the phtisis, hectic fever, rickets, scurvy, venereal disease, &c.—and it is observable, that this state of the bones never appears but when the putrid diathesis occupies a part, or

(q) M. le Dran Memoire sur le Cancer.—See Mem. de l'Academie de Chirurgie, Tom. 3.

the whole of the animal œconomy. — It is, therefore the cause which is common to all those diseases, that we must consider on this occasion, as the author of the ravages we are speaking of ; and this cause is no other than the putrid diathesis.

Thirteenthly. The caries is either *local*, and then is the immediate effect of the putrid ichor: —or *general*, that is, is seated in some part of the system not liable to the immediate touch of the ichor, and then it is to be referred to the general putrid diathesis we have spoken of.—The bones, on account of the little vital force there is in them, have great difficulty to free themselves of putrid miasmata:—While on the other hand, their *gluten*, from the state of repose in which it is, is easily susceptible of the putrefactive process that is thus carried into them. From this inactivity of the bony parts of the body, it soon happens, that the putrid humours circulating slowly through the bones, infect the gluten which binds together the earthy particles, with the same vice; and the gluten thus becoming putrid, loses its agglutinating power, and is

of course, no longer able to keep those parts together : — besides all this, air, which is known to be the chief means of cohæsion in all bodies, is incessantly exhaling, from the first moment of putrefaction.—Here, then, is a second cause of this phenomenon, and which does not add a little to the powers of the first.—The earthy *moleculæ*, however, being thus set at liberty, and freed from this gluten, are in some measure taken up by the absorbents, while the remainder continue in the eroded bone ;—and this it is that constitutes caries.

Fourteenthly. The bones become fragile, sometimes by the caries which erodes some internal or external part of the boney cylinder ; and sometimes by the dryness alone, or the disunion of the elements, without the existence of caries. In the first of these two cases, the diminished substance of the boney cylinder being no longer proportioned to the weight that is to be raised, or to the necessary action of the muscles, breaks off at the carious part. — In the second case, the air being disengaged and dissipated
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by putrefaction, the gluten liquefied and absorbed, although the earthy parts, as happens when we burn a bone, still preserve the same aspect and situation; they have, nevertheless, lost their cohæsion; and thus the bones, being rendered friable by this decomposition, break with the least effort (r).

LIII. Fifteenthly. Although the vessels resist more than many other organs to the putrefactive process, they, however, become subject to it after a certain time (§ xxiv.) — Hence those hemorrhages, and sometimes mortal ones, which take place in Cancer, especially if its seat is in the uterus, which we know to be so abundantly supplied with vessels; in the heart, penis, &c.—It is the more difficult

(r) We have examined, more fully and attentively, this fragility or friability of the bones, in a particular work on the *mollitia ossium*, which will soon appear; — in this work after sending back the acids to the laboratories of the chymists, we shall clearly prove that all these affections of the bones are to be ascribed to a putrid diathesis.

to restrain these hemorrhages, because external applications cannot be made to penetrate to their source; and even when they are within reach of the hand, compression, styptic liquors &c. tend only to irritate the Cancer—we may add to this, that in this stage of the Cancer, the dissolution of the blood, which is the consequence of the putrid diathesis, renders every attempt to stop the hemorrhage fruitless.

Sixteenthly. While this scene is passing externally, that part of the cancerous ichor which is absorbed, infects the general mass of humours—Hence the internal effects (s), such as the fever which assumes the character of a slow fever—the dryness, the yellowness and heat of the skin; and hence too all the functions become weakened, and some of them perhaps altogether destroyed, and the patient falls into marasmus.—The absorption of the

(s) For the sake of perspicuity, I have chosen to speak of the internal effects of the cancerous virus, at the same time with the external ones.

cancerous virus continuing, there at length appears a fever of a more malignant character, which may be stiled the *cancerous fever*; the degree of heat in this, is far beyond what is felt in the ordinary *hectic fever*, and it torments the patients without any remission. After a long aversion to food the appetite sometimes returns, and in an extraordinary degree too, not very different from what has been named *fames canina*.—This phenomenon however is not unusual in other diseases that are produced by putrid acrimony.—The stools, which are accompanied with colical pains and tenesmus, by their fœtor render the patient insupportable to himself.—The urine, which is likewise exceedingly fœtid, is at first red, but as it cools becomes of a whitish colour, from the precipitation of a red sediment which I have observed to be in a great measure of an earthy nature.—The *cancerous fever* produces many evils; it is only with the greatest difficulty that it can be kept under, for it is incessantly augmented by the putrid diathesis which it serves to increase in its turn, and so long as this
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fever lasts, the system must be indispensably hastening towards its final dissolution.

§ LIV. Seventeenthly. The spasmodic affection is derived from the same source as the preceding phenomena. The humours, when they have attained a certain degree of cancerous acrimony, irritate the solids, whose sensibility seems to be increased by grief, inquietude, weakness, watchfulness and perhaps by medicines. This morbid irritability then of the whole machine may be called the *spasmodic* or *cancerous state*.---This state is very difficult to be overcome, and yet so long as it continues, the hopes of cure are groundless; for it occasions obstructions and tumefactions, which can neither be stopped in their progress nor dispersed, and which very soon degenerate into Cancer. Besides, its presence proves to us that the whole animal oeconomy is infected with the cancerous vice, from which all the art of man has hitherto been unable to deliver it. It is from this cancerous or spasmodic state, as from a diagnostic sign,

sign, that we may infer the reason why some extirpations which seemed to be desperate ones, have succeeded. — In my opinion, this state is not sufficiently attended to; it is certainly the chief basis of the prognostic, and there can be no doubt, but that from not having consulted it, the judgment which is formed, is very often as ill founded, as if drawn wholly from observations made on the habit of body, without fully considering the state of the tumour or ulcer.—Whether it is in this same morbid irritability, that we are to seek the cause why women, and especially hysterical ones; and likewise timid, hypochondriacal men; without, however, forgetting the natural tendency of these subjects to putrid diathesis, are more frequently attacked with Cancer than those of a different constitution, and more in danger than others, when the disease has once fixed its seat? I leave to men of more learning than myself to determine.—Is it not, likewise, because this same irritable power is more feebly excited in brutes, who are exempt from those passions of the

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mind, to which men and especially the hypochondriacal are so violently subject, that they are more rarely affected than we are, and perhaps altogether exempt from true Cancer, although they are liable to obstructions in the system similar to ours.

Eighteenthly. The spiculæ of the virus which excite the spasm, being increased in proportion as the patient draws towards his end, and the muscles, being more powerfully irritated, contract in disorder, and produce spasmodic motions and true convulsions.—To this particular cause of convulsions, may be added the other ordinary causes, which take place here, such as pain, hemorrhage, &c.—To this *cancerous state* likewise seems to belong, the anxiety about the diaphragm, the palpitation of the heart, the colical pains, the diarrhœa, the constipation, the ischury, the diabetes, and the other symptoms which torment the patient alternately and without order.—

In short, all the functions being overturned, there comes on that extremely emaciated state which accompanies the
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last stage of putrefaction :—to this may be added, loss of strength, and at intervals, fatal hemorrhages, &c. — The local effects are increasing during all this time, and especially the pains.—This accumulation of ills, after along series of the most horrible miseries, at length puts an end to the existence of the patient.

S E C T I O N IV.

Of those States of Cancerous Disorders in which Cures may be obtained.

§ LV. In order to understand what we mean to advance on this division of our subject, the reader will be pleased to recollect what we said, concerning the several periods, or stages of Cancer (§ vi. et seq.)—In the first stages of the disease, a Cancer is susceptible of resolution, and this very often happens either by the assistance of nature alone or of art.—The Cancer of the second period is sometimes discussed and sometimes not.—When it is beginning to form, as it were, and is still in its growing state, it frequently gives way to proper medicines and topical applications; but when it is grown older, and has attained, if I may be allowed the expression, its adult state; it resists every remedy. But in this second period of
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the disease, where are the bounds marked out that separate the young from the adult state? — In answer to this I will say, that observation teaches us that this boundary is that state of the tumour, in which the solids have only so far lost their organisation, as that they are able to recover it. — This period may very aptly be compared to the gangrene, in the very moment in which the solids, if immediately assisted by proper remedies, may be recalled to life. — Whereas, if that precious opportunity is suffered to escape, they become the victims of an incurable mortification. — But it will be naturally asked, by what sign are we able to ascertain this fatal boundary in the Cancer? I will candidly acknowledge that I know no mark which can be depended on as a certain and invariable one:—that which we derive from the hardness of the tumour, from its age, its inveteracy, the loss, or even the actual existence of its feeling, is liable to deceive.—A Cancer, in the second period, being still susceptible of resolution, because its organisation is not yet destroyed, will admit of the same

same remedies as a Cancer in the first stage.—It is in these cases, that it is necessary to establish the flow of the catamenia or of the hemorrhoids, and to obviate the viscid state of the lymph; endeavouring at the same time to relax and soften the solids, by proper remedies and diet:—but let the surgeon here be upon his guard. — The useful activity of remedies in cancerous diseases is included within very narrow bounds:—on the one hand it is necessary to rouse the inactivity of the vessels of the tumour, by proper means, otherwise the medicines will be of no efficacy; but on the other hand, they must be directed with a prudent hand, lest their operation should be too powerful, and thus excite irritation, spasm, afflux of humours, and inflammation, to the great prejudice of the patient.—He, who having found out what might be the exact rule in these cases, which is so difficult to ascertain, and who could make it infallibly known to others, would certainly do a great service to the world:—but as we know not this rule, the attempt to discuss a Cancer in its second period, by

by medicines, is always fallacious, often does harm, and sometimes proves mortal. In a word, a cancerous tumour, at the beginning of its second period, that is to say, when not yet deprived of its organisation, may give way to medicine;—and it is to the disease in this stage, that belong all the ancient and modern specifics, which it would be superfluous to enumerate here (§ xi.). With respect to the cancerous tumour, when more advanced in this second period; that is, when it has lost its organic texture, I not only believe that the disease in this state has never yielded to medicine in any way whatever, but I really doubt, whether any man who is acquainted with the laws of the animal œconomy, can ever give faith to the pretended cures we meet with in this way.

It is certain that medicines can only act in proportion as they are put into action. The vessels of the cancerous tumour are either extremely obstructed, or altogether obliterated, and are, therefore, unable to receive any juices which may come to them impregnated with medicines; and
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if we even suppose them to have received these medicines, it would be impossible for them to disperse them through the whole of their tubes, the sides of which have lost their elasticity, and natural cohæsion, from the putrefaction, which is either beginning, or already somewhat advanced.—*Gendron*, long ago announced this impervious and inorganic state of the Cancer, when he asserted that the *occult Cancer* is a compact and indissoluble mass (t); but he was not attended to.

§ LVI. The specifics that have been lately introduced, do not raise any doubts with me, concerning the impossibility of curing, by internal medicines, Cancers that are advanced to a certain degree in the second stage, or that have attained the third or fourth.—The efficacy of hemlock, which was so much extolled in these cases, seems to be now dissipated.—There is, perhaps, hardly

(t) In the work already quoted.

any reasonable physician in Europe, if we except the inventor of this remedy (u), who has not withdrawn his confidence from it.—Dr. Akenfide, who attempted in several cases to cure Cancer by means of hemlock, either alone or combined with the sublimate, ingenuously acknowledges, that this remedy was altogether inefficacious in Cancers of the third or fourth degree, although he

(u) My meaning here, must be taken in its true sense, for my assertion to have its proper weight.—I do not wish to confound with the person who still prescribes the hemlock, the motives of humanity with which he may use it.—Well-informed physicians will in these cases, give hemlock, as they formerly gave opium, with which it has many properties in common; and, though they do not expect a cure from it, it seems to moderate the pain, and to keep alive the hope of the patient.—This hope is a very delusive one it is true, but yet it must be acknowledged, that while it lasts, it is as powerful and as enlivening to the patient, as if it was well founded.—But there are others who prescribe hemlock, and who really expect it to cure. — It is with new remedies as it is with fashions. The great introduce them, and when they have given them up, they pass on to the people, who are unable, perhaps, to judge of their merit, but are very much inclined to copy their betters.—It is the same thing in medicine. The medical world, like the world at large, has its different ranks, and the vulgar in both are in the greatest proportion.

used it with success in some cancerous tumours, newly or imperfectly formed^(w); (that is, in the first degree, or at the beginning of the second). — Dr. Andree likewise found, after a great number of trials, that it would not cure the Cancer, and that it merely served to torment the patient to no purpose^(x). — It is certain, that every remedy, in which the physicians confidence is vainly founded, does harm, and especially in cases of Cancer; because, while he is losing time in these useless efforts, the disease is gaining ground apace. The cancerous ichor, included within the tumour, is acquiring, all this time, more and more energy, and is infecting the humours more completely: so that the insufficiency of the remedy is often not acknowledged, till the patient is irretrievable.—From all that I have said hitherto, unless I am deceived, I may be permitted to conclude, that

(w) Medical Transactions. Vol. I.

(x) Guy on Schirrous Tumours.

every attempt to cure a Cancer, by any method which is to restore the diseased part to a healthy state, (unless we except the first, and part of the second period) is not only vain, but absurd :—and, consequently, that a Cancer cannot disappear till all this diseased part is removed. No author seems to have doubted the impossibility of curing Cancer.—Galen says, it is incurable (y), *because mild remedies are of no efficacy; and those which have more energy, indurate.*—This is his own expression.—Oribasius and Ætius are of the same opinion as Galen, although they fancied that these tumours might receive benefit from some softening medicines, and thus they fell into an error (z).—In short, there will

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(y) De Composit. Medicament. secund. gener.

(z) M. Peyrilhe has added, in this place, a long note.—We shall content ourselves with giving the substance of it.—It seems that a physician at Strasburgh, and another in France, have recommended the internal use of arsenic, as a safe and efficacious remedy in Cancers.—The learned author thinks he has satisfactorily proved the insufficiency of all our attempts to cure this disease, after a certain period; and he particularly opposes himself to the use of arsenic, which, even in the smallest

in no author be found any precept more excellent and valuable, than the following

smallest dose, he contends, is an infallible, though perhaps, a slow poison; and, of course, ought not to be administered:—he even goes so far, as to recommend it to the magistrates to interfere on this occasion. I have lately seen the French publication, to which M. Peyrilhe seems to allude; it is written by M. Le Febure, and is entitled, *Remede éprouvé pour guerir radicalement le Cancer occulte, et manifeste ou ulcéré*. The author confines himself wholly to the cure of Cancer, which he proposes to effect by arsenic.—He directs four grains of it to be dissolved in a pint of distilled water, and the dose to be at first of a table spoonful once a day, and after some continuance, twice, and even three times a day:—he even mixes arsenic with his injections and poultices. I confess, however, I much doubt the efficacy of this medicine; and we know that in the smallest doses it may produce very fatal effects. — Disagreeable symptoms have occurred from its external application only.—Dr. Fothergill, who has lately published some very ingenious observations on the disorders to which painters in water-colours are exposed; has observed that an exquisite pain in the feet, is a common symptom in these complaints; and he adds, “When that celebrated medicine called Plunkets, was in use about fifteen or twenty years ago, for the extirpation of Cancers, I met with the like pains in the feet, where that medicine had been plentifully and repeatedly applied, for the extirpation of cancerous tumours; and it was generally apprehended that white arsenic was a principal ingredient in that composition.” See Med. Obs. & Inq. Vol. V.—We certainly cannot be too cautious in the use of so active a poison as arsenic. — An ingenious gentleman very properly remarked to me, lately, “that although all medicines are poisons, all poisons are not medicines.” *

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one, by Monsieur Le Cat ; *aut blandire, aut seca.*

We moderate the effects of Cancers in every stage, by an antiphlogistic diet ; and by an infusion of slightly bitter plants, such as chamepitys for example, which was much esteemed by Albertini ^(a), who had often experienced its great virtues. — To these may be added, blood-letting, which Valsalva found, when practised four times every year ; that is, twice in the Spring, and as often in the Autumn; to be one of the most efficacious means of retarding the progress of cancerous tumours, whether of the breast or uterus^(b).

§ LVII. What we have said in this section, seems to have rendered it unnecessary for us to inquire into the nature of the different remedies that have been proposed by authors for the cure of Cancer. — We have, we think, sufficiently

(a) *Apud Morgagni, de Causis et sed. morb. epist. 39*
§ xxxv.

(b) *Ibid.*

proved the impossibility of such a cure, in certain stages of the disease.—I might, indeed, have discoursed on those medicines, which are proper for the discussion of Cancer, in the first stage, and at the beginning of the second; but this inquiry would have been tiresome to the Academy, and would have answered no good purpose, because these remedies are universally known, and are every day in use, not only in the treatment of cancerous diseases, but in other affections of the lymphatic glands; as in strumous swellings, &c.

S E C T I O N V.

Of the best Method of effecting a Cure.

§ LVIII. Experience seems to have proved, that there can be no hope of cure in cancerous diseases, unless by separating the diseased mass from the healthy parts of the system :—hence it is, that surgeons in all ages, have directed their aim wholly to its extirpation, by the various means of suppuration, caustics, the actual cautery, and the knife.

§ LIX. The ordinary suppurating remedies have long been disused in the cure of Cancer, by the unanimous consent, as it were, of the best surgeons ; — and this for very good reasons.—A thousand unhappy events have proved, that those remedies not only are insufficient to procure a laudable suppuration, but that they
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add to the malignancy of the cancerous virus, and hasten the putrefactive process.

§ LX. The same decision will hold good, on the cruel practice of burning the diseased part :—but I will not detain the reader with arguments to refute this practice, because I believe that in these times it is wholly fallen into disuse.

§ LXI. Much has been disputed concerning the good and bad effects of caustics, in the extirpation of Cancers ;—but what are the views of the surgeon, when he applies corrosive medicines to the Cancer ? does he not mean to extirpate or consume it ? if he proposes to himself to consume it, he can effect this by burning at once the whole cancerous mass :—for, if the tumour is too extensive for this, and the Cancer is only partially burnt, by the application of a caustic, or of the actual cautery, we add fresh fuel, as it were, to the disease, and excite spasm and inflammation, and of course, increase the corruption and erosion. — If the surgeon
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proposes to himself the eradication of the cancerous mass, he may, indeed, attain this by means of caustic applications placed around it:—but then, to what atrocious pains, and to how many dangers does he expose the miserable patient:—for, to say only this of it, is it not evident, that if the most minute portion of the diseased mass, or the finest root that is connected with it, (supposing it to be infected), should escape the power of the topic, by being buried too deeply within the ulcer or tumour, or by extending beyond the space that is surrounded by the caustic; is it not evident, I say, that the part that is thus left, will be hastily excited into corruption, by the inflammation, the pain, and irritation that will accompany the action of the caustic; and thus the disease will make a rapid and hideous progress, and will produce much greater ravages than if it had been left to itself, or extirpated by means of the knife.—The ancients, indeed, made use of caustics in these cases; but the dread of hemorrhage, and the little knowledge they had of anatomy, rendered them timid.—The surgeons of

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these times, seem very properly in a great measure, to have laid aside these applications. They are now only in the hands of some daring empirics, who continue to delude the people in this fatal way.

§ LXII. Before we quit the subject of caustics, we will attempt in a few words, if it be possible, to point out the source of that wonderful confidence which so many of the people (c) place in empirics. — Every body agrees, that the specifics, which have been so much and so often extolled in different countries, for the cure of Cancer, are of the tribe of caustics. — We know too, that caustics may, in certain cases, when prudently applied, succeed in the cure of this disease. — It is, therefore probable, that these remedies, even in the hands of ignorant people, and applied at random, may sometimes have the wished for success; although, perhaps

(c) The reader will find an ample supplement to these few remarks on empiricism, in my work, entitled "Essai sur la vertu antivenerienne, des Alkalis volatils." A. Paris, chez Ruault, rue de la harpe.

not more than one or two are relieved, of a thousand who by these means are carried to the tomb.—Surgeons would certainly employ the same remedies, and thus tread in the steps of their predecessors, if they were not acquainted with more certain ones; or if the sensibility of an honest man could permit him to sacrifice a thousand patients, (a crime, which is, perhaps, inevitable in the use of caustics) for the precarious relief of one or two.—It therefore seems, that the reputation of empirics has three causes. First. Their hardness, from being now and then successful. Secondly. The inconstancy of mankind. Thirdly. Patients being sometimes given up by regular practitioners, who are tired out by a long and unsuccessful attendance, and in many cases pronounce the patient to be incurable, when nature, perhaps, is about to operate some favourable change.—But we advise the surgeon to assist the patient regularly and patiently, even when his case seems to be desperate.—In the melancholy cases we are treating of, he may, by an assiduous attention to the state of

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the sick, very often have it in his power to soothe and mitigate the torments of the miserable patient, although he cannot hope to cure the disease. — He will every moment have it in his power to exercise his humanity and tenderness, and perhaps when he least expects it, a favourable change may take place.—I have sometimes seen this happen.

But to return from this digression:—the surgeon should learn to distinguish cancerous ulcers (d) from the true Cancer; I shall therefore point out the difference between these two formidable diseases.

§ LXIII. We think, with *Juncker*, that the denomination of Cancer, ought to be much restrained; and we shall therefore not extend it, as many authors have, to ulcers of every kind, which af-

(d) “ Sometimes an eroding ulcer, with a previous tumour, is called a Cancer, and by some, with no impropriety, a *Canker*, as this word imports a disease, proceeding from an humour of a corrosive nature.” — Gooch’s Med. Obs. page 151. *

ford the appearance of putrid wounds; such as fistulous, malignant, colliquative, venereal and other ulcers: much less shall we understand by this term, (notwithstanding the authority of Celsus) gangrene, and sphacelus. — Many of these ulcers may assume a cancerous aspect, from improper treatment; from the nature of the diseased part; or from the vicious state of the fluids. — Those which degenerate the most easily in this way, are the ulcers which are formed after the suppuration of bubo, polypus and sarcoma. — We shall here mark out the signs that distinguish all these from the true Cancer; this distinction being of the most important consequence to the surgeon.

§ LXIV. First. Cancerous ulcers, as well as the true Cancer, are very difficult to cure.

Secondly. They are accompanied with an acrid pain.

Thirdly. Their edges are turned back, and their circumference is varicous ^(e): —
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(e) These varicous vessels are of two kinds; — one sort being

instead of pus, they discharge a little sanies, of a very disagreeable smell, and they soon become hollow and cancerous.

Fourthly. Like the true Cancer, they spread by eroding the parts around them, and commonly are attended with certain death, if left to themselves, or improperly treated:—but they do this more slowly than the true Cancer.—These are the signs that are common to the two diseases:—here follow those that are peculiar to cancerous ulcers.

First. Although they are difficult to cure, yet we usually succeed in the attempt, and sometimes by ordinary methods, which are absolutely insufficient in cases of true Cancer.

ing the superficial branches of the cutaneous veins:—those of the second kind are placed immediately under the epidermis, and have no determined course, seeming, however, more particularly, to take a curved direction, and appearing to form a part of the corpus reticulare. — The first of these are the true source of the hemorrhage we observe in these cases.

Secondly.

Secondly. The pains which accompany them are neither so profound, so burning, nor so lancinating as those of the true Cancer.

Thirdly. They sometimes afford, at intervals, a somewhat laudable pus.

Fourthly. They spread more slowly than the true Cancer, and rather in breadth than in depth.

Fifthly. Sometimes they stop of themselves, and resume the appearance of mild ulcers, which they had at first.

Sixthly. They sometimes afford excrescences, which are very rare in the true ulcerated Cancer ; *unless they occur in some part that is softened by deterfive and balsamic applications* (f). — Let it not be thought, however, on the authority of Juncker, that excrescences arise from within the Cancer itself. These fleshy masses or fungi are formed at the expence of the parts on which the Cancer reposed itself as it were.

(f) Juncker Consp. Chirurg. pag. 321.

From these marks, the surgeon will easily be able to distinguish cancerous ulcers from the true Cancer: but whence arises the difference of these phenomena, and of the event of the disease?—This question is difficult to answer, but as it is a very important one, I will attempt to throw some light on the subject.

§ LXV. Cancerous ulcers are the consequence of a wound; or of a slight putrid diathesis of the humours; or of an obstinate obstruction of long standing, in the follicles or glands. From either of these causes it will be allowed that a putrid state of the ulcer may take place. When this putrid state is come on, if it is succeeded by violent inflammation, it will necessarily erode and spread itself; but if only a very slight inflammation takes place, and the heat is moderate, the ulcer will be simply a *colliquative one*.—When an ulcer of the first kind, that is, an inflammatory one, follows a wound, or a slight putrid diathesis of the humours, the putridity attacks only the extremities of the vessels, and the fluid falls into the cavity
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of the ulcer. There they are immediately attacked by the putrid ferment, in the same manner that we have described (§ L.) and thus the erosion proceeds slowly, and is confined almost wholly to the surface of the skin.

§ LXVI. But if the ulcer is the consequence of an obstruction of long standing, the greatest part of the vessels, which bring fluids to the obstructed part, are, as in the true Cancer, rendered more or less tumid by the fluids they contain: and as fluids, in a state of repose, are more easily susceptible of the putrefactive process, than those which are in motion; the corruption will penetrate more deeply, and the erosion will advance more rapidly, in this, than in the former ulcer: and indeed, experience has proved to us, that ulcers of this last kind, may degenerate into true Cancers, and the more easily, in proportion, as the obstruction has been of a longer or shorter duration, and at the same time is more or less compleat.

It is thus we read in Baron Van Swieten's work of a farcoma (g), in *Platner* of a ganglion (h), and of buboes in many authors, which have been changed into Cancers of the worst kind, and which no methods were able to stop the progress of. In a word, the whole of the difference between the several phenomena, lies in this, that in cancerous ulcers, which are not the consequence of an old and compleat obstruction, the corruption is almost wholly confined to the surface and to the cellular membrane, and thus is within the reach of medicines; — whereas, in the contrary case, that is, when the putrefaction attacks parts that are at a distance from the ulcer, by means of vessels, no matter of what sort, that have been long obstructed; it eludes the energy of medicines; and even assumes new vigor, if those which are made use of are irritating or corrosive, and this on account of the in-

(g) Aphorism 494.

(h) *Institutiones Chirurg.* § 773.

creased heat which they occasion in the part.

§ LXVII. It will not be amiss to inquire here, whether cancerous ulcers are produced by a retropulsion of the cancerous virus, into parts, that are at a distance from the original seat of the disease.—There can be no doubt, but that the cancerous ichor, being mixed with the humours, irritates and infects the parts through which it is circulated.—Let us suppose then, that in some organ the lymph is viscid, or that it has a true obstruction.—If the ichor penetrates it, it is certain, that first the stagnant fluids, and then the solids, will enter into putrefaction, after a certain space of time, as well from the energy of the fermenting principle, which they have thus received, as from the augmentation of the heat produced by the irritation.—This corruption (as we have already said) is purely colliquative, and of course, the ulcer, if the heat is moderate, will be likewise simply colliquative:—but if the heat arrives to a certain degree, which I have

not been able to ascertain with sufficient exactitude, although I have much attended to it (i), it is then, more than certain, that this corruption may become cancerous, and thus the retropulsion of the cancerous ichor, will give birth to a cancerous ulcer, which would never have existed without it.

§ LXVIII. In conformity to the question stated by the Academy, I ought to mark out here the signs that characterize

(i) It is to be lamented, that the source of natural heat is unknown to us. — Through the whole of this work I have derived it, from the movement of the circulation, and from muscular motion, although I am well aware that this hypothesis is not only insufficient for the explanation of the phenomena of animal heat, but that it is repugnant to some experiments that have been lately made.—I have no doubt, but that if the source of this heat was truly known, much light would be thrown on the theory of Cancer.—Why do physiologists so much neglect that cause of heat, which is founded on the joint effects of irritability and muscular motion.—It is wonderful how many difficulties are removed concerning animal heat by this hypothesis. — I have long thought of it: — I have compared it with the phenomena, and it seemed to me worthy of being considered as a physiological truth. — I have written something on this subject, which I shall one day or other, make public.

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the Cancers of different parts, together with their distinctions. &c.—I might, indeed, collect together the symptoms peculiar to particular organs, on account of the diversity of their functions and uses; but this dissertation, which is already of too great a length, would, in such a way, be unnecessarily drawn out to a tedious bulk, without adding any thing to the clearness and certainty of the general theory of Cancer, or of the cancerous virus.—Besides, we should have been obliged to have had recourse to the descriptions and signs given by authors; and the Academy disdains to receive what has already been published. — Solely attentive to the progress of science, she seeks only for what is new and unknown; and such discoveries cannot be expected from us on this head, submitted as it is to our senses, and on which so many celebrated men have employed themselves: nevertheless, we will give some few general precepts, concerning the diagnostic of Cancers seated in different internal organs.—The existence of internal Cancers is discovered by the functions peculiar to the
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the organs in which they are seated, becoming injured or abolished :—but that this diagnostic may be a certain one, it will be necessary, first, that this injury to the functions, be such as is usual to follow slow compression or erosion : secondly, that there be no other disease existing, to which these symptoms may be referred : thirdly, that this change in the functions continue in the same state for a considerable length of time, without any remarkable increase, when the disease is supposed to be a Schirrus ; but it may be expected to follow the usual course, when it is cancerous.—From what has been said, the signs of external Cancers will easily be collected (k).

§ LXIX.

(k) Mr. Pott's last publication did not make its appearance till after this work was published in France :—that ingenious and experienced writer has described a particular kind of cancerous affection, which fixes itself on the scrotum, and which, from being almost wholly peculiar to chimney-sweepers, he has named, *the chimney-sweeper's Cancer*.—It usually attacks the inferior parts of the scrotum, where it produces a superficial, painful, ragged, ill-looking sore, with hard and rising edges. — The trade call it the *foot-wart*.

§ LXIX. Having finished this little digression, I proceed to speak of the extirpation of the Cancer, by the knife.—My design is to point out those circumstances in the disease, which are favourable to, or opposed to the operation.

Deterred, by the fatal prognostic of Hippocrates, surgeons, during many cen-

foot-wart.—Mr. Pott never saw it under the age of puberty, which he supposes to be one reason why it is generally taken to be a venereal complaint, and by being treated with mercurials, is thereby soon and much exasperated : In no great length of time it pervades the skin, dartos, and membranes of the scrotum, and seizes the testicle, which it enlarges, hardens, and renders truly diseased : it then makes its way up the spermatic process into the abdomen, and commonly indurates the inguinal glands : when it has reached the abdomen, it affects some of the viscera, and then very soon becomes painfully destructive.—This is the progress of the disease. Its cure, seems to depend, on an early extirpation of that part of the scrotum where the disease begins ; for if it be suffered to remain till the virus has seized the testicle, it is generally too late even for castration.—This disease is, in Mr. Pott's opinion, the consequence of the patient's occupation, and in all probability local ; so that he thinks it is to be considered as a very different case (at first) from a Cancer which appears in an elderly man, whose fluids from time or other causes, are become acrimonious ; or from the same kind of complaint in women, who have ceased to menstruate.—See Pott's Chirurgical Observations, page 63. *

turies,

turies, were unwilling to undertake the cure of Cancer:—the most daring of them ventured only to extirpate small, recent and moveable Cancers, either by amputation, which was succeeded by the actual cautery, to prevent hemorrhage (1), or

(1) I was of opinion, when I composed the first edition of this work, that the ancients used the actual cautery, only in the way here mentioned; but I have since discovered, that some of them cauterized, even without any fear of hemorrhage, and merely to destroy the remains of the cancerous mass, which might have escaped the cutting instrument.—Leonidas of Alexandria, chief of the sect of Epythetics, who lived under M. Aurelius, or Commodus, about the year 180, is the first surgeon who speaks of this cauterization;—“*one of which, says he, is intended to stop the bleeding, and the other to destroy the remains of the disease.*” “In Cancers of the breast, I am accustomed to place the patient in a recumbent posture, and after having cut away the cancerous from the sound part of the breast, I burn the wounded part with the cautery, until the crust that is formed by these means, restrains the flow of blood.—Then I begin to cut again, and dissect out the deep part of the breast; and then I burn the wounded parts as before, often repeating the practice of first cutting, and then burning, with a view to restrain the flow of blood:—by these means all danger of hemorrhage is avoided; but when the amputation is compleated, I again burn all the parts, even to dryness.—The first cauterizations were only to stop the blood, but the latter one is done to destroy all the remains of the disease.” Aët. tetrab. iv. Serm. Cap. iv. The operation, as we practice it now, may excel that practiced

or by caustics.—Towards the close of the sixteenth century, they quitted this cruel method of burning the Cancer, and began to employ amputation with the knife : since that time, this method has been more firmly established, and is now the only one in use amongst the most celebrated surgeons of the present age.—They

ced by Leonidas, in the way of quickness and elegance, but is surely much inferior to it in the way of safety.—It is, indeed, in the very moment when the amputation is performed, that all the remains of the cancerous mass should be destroyed, and not when these neglected roots begin to re-produce the disease.—Caustics may, in some measure, perhaps, supply the place of the cautery, but it is not without great risks : — for, if they are employed in a small dose, on the one hand they inflame, and this inflammation usually occasions induration and often regenerates Cancer : on the other hand, not cauterising with sufficient quickness, they are in some measure absorbed, and thus produce other disagreeable effects.

The choice of the caustic which is to be employed, is by no means a matter of indifference.—I am inclined to prefer that which joins the greatest activity to the least dissolubility.—I could wish too, that some experiments might be made to determine how much caustic is required to destroy such and such parts to a certain depth :—for this property being once determined, it is to be presumed, there would be less danger in applying the whole quantity at once, than at different times,

dispute, however, concerning the circumstances of the disease wherein amputation is allowable.—Some of them contend, that we should amputate only the recent, moveable, and solitary Cancer :— when it adheres strongly with a broad basis, the most experienced surgeons do not hesitate to leave it to itself, and give the patient up to inevitable despair and death. — Is the Cancer, then, which is firmly adherent to the parts on which it rests, absolutely mortal? In order to throw some light on this question, it will be necessary to say something of the nature of the parts, by means of which the adhesion is effected.

§ LXX All organs, susceptible of the cancerous virus, are connected with the neighbouring parts, by vessels of different kinds, and by the cellular membrane. The tumefaction of this cellular membrane, and of the vessels which circulate through it, gives rise to a concretion of the fluids which flow through those vessels.—The soft and loose parts, which serve to attach the tumour, become shorter and harder, and, at length, fix it
more

more firmly. — There does not seem, then, to be any thing in all this, which can be sufficient to restrain the hand of the surgeon, or to stop his ears to the prayers of the unfortunate.

It is true, that it is necessary to amputate the whole of the adhering mass; and, of course, this, sometimes, cannot be done without a great loss of substance.—But the danger from the wound, when compared with the certainty of death, ought to moderate our fears, with respect to the amputation of the pectoral muscles, &c. even though we should be obliged to carry the amputation as far as the ribs: nor should we despair of the recovery of the patient, even though some portion of the roots of the tumour should remain; provided we are careful to keep off, or, at least, to moderate, the inflammation.—In a word, it would seem as if we may amputate a Cancer with safety, even though it should adhere intimately to the neighbouring parts, provided there is no insurmountable cancerous state existing:—if there should remain some little diseased parts, after the extirpation of the tumour,

we may be able perhaps, to remove them, either by means of antiseptics, of which we shall soon speak (lxxiv.), or of other remedies.—Much judgment and cautious attention, will, it is true, be required on such an occasion: without these, we had better remain inactive. — I advise surgeons, above all things, not to spare the integuments on these occasions, for they are fallacious. — I am of opinion, that their operations have often failed of success, merely from their having left a cancerous skin, the natural colour of which, deceived them:—they fancied it healthy, but its consistence and thickness commonly prove it to be diseased.—You will see in Morgagni ^(m), that it was to this boldness we are recommending, that Valsalva owed his success, in the cure of a breast, which he describes as having been most horribly ulcerated.

§ LXXI. The unsuspected existence of smaller cancerous tumours, suspends the

(m) Epistol. iv. No. 61.

hand of the surgeon who discovers them : it is necessary on these occasions, to enquire, whether they owe their origin to the primitive cause ; that is to say, whether the least advanced of them were generated before the return of the pain, in the primitive Cancer, which takes place at the beginning of the third stage. In this case, Hildanus advises us to extirpate them likewise (n). He himself amputated a breast, although there were several considerable schirri, in the axilla, which he removed at the same time.

§ LXXII. That no imprudent conclusion may be drawn from what we have advanced, in saying, that we submit all Cancers to the knife : we think it right to acknowledge here, that there are certain cases, in which it would afford no room for hope : as for example, when the Cancer is in a situation, to which prudence will not permit us to carry the instrument ; or when the tumour is large ;

(n) Observ. Chirurg. Cent. 11. Obs. 72. pag. 150.

not circumscribed; inveterate; immovable; cemented, as it were, with all the parts around it; and torn by the most acute pains, through the whole of its substance; &c. for such a state as this, never exists, without the cancerous state, being, at the same time, arrived to a very great height, and the whole animal œconomy's being infected with it.

§ LXXIII. Let it not, however, be thought, that I consider the Cancer, whose virus has infected the whole mass of humours, as a case which is wholly to be despaired of. There are still, perhaps, some glimmerings of hope remaining. I will point out the method which will be proper in the treatment of this infection of the humours, after I shall have treated more particularly of the ulcerated Cancer, or Cancer in the fourth stage.

§ LXXIV. When a Cancer has attained its highest state of ulceration, the hopes of the surgeon are usually lost; and yet, even in this stage of the disease, much may be done to mitigate the symptoms,

toms, and prolong the life of the patient; and even, perhaps, to operate a cure: for, besides the extirpation of the diseased part, by the knife, which would often succeed, if the cancerous diathesis was obviated by suitable methods: art supplies us with other means of cure, which are to be derived from medicine.—The indications of cure, will therefore, be four, all which must necessarily be adopted, if we wish to succeed. First, To destroy the present corruption. Secondly, To prevent its future generation. Thirdly, To bring about a separation of the inorganic mass. Fourthly, To procure the healing of the ulcer.

Every one will conceive, that a medicine possessed of sufficient energy to overcome the cancerous corruption, would, at once, fulfil all these indications: but, unfortunately, every day's experience proves to us, that hitherto such a remedy has been sought for in vain. Deterfives, agglutinating applications; antiseptics, which excite irritation; and some others, that are too often used in practice; occasion spasm, tumefaction, inflammation,

tion, &c. and add to the disease.—It was a question suggested by the celebrated M. le Cat, (a man of genius, who seems to have been born for the improvement of our art) whether some suppurative, might not be discovered, which might be adapted to the nature of Cancer : he concluded, that though far from being certain, it was not impossible.

§ LXXV. First. The *gas sylvestre*, which is supplied by all substances in actual fermentation or effervescence, seems to us to be the suppurative that has been so long wished for.—Every body knows, that this very subtil fluid, restores putrid animal substances to their sweetness (o).—No person, however, has, to my knowledge confirmed its antiseptic virtue, by any experiments made on parts still adhering to the living body (p). — I am inclined

(o) Macbride's Essays.

(p) The learned author does not seem to say too much here :—it is true that Mr. Hey's paper, on the good effects of fixed air in a putrid fever, had been published by Dr. Priestley,

clined to believe, however, with confidence, that it will be found to have the

Priestley in the first edition of his observations on different kinds of air: but Dr. Percival's paper on the medicinal uses of fixed air, in which he recommended its application to foul ulcers and Cancers, was probably not published till after this work was in the hands of the Academy. It will not be amiss to give here the words of that ingenious writer.

" If mephetic air be thus capable of correcting purulent matter in the lungs, we may reasonably infer, it will be equally useful when applied externally to foul ulcers; and experience confirms this conclusion: even the fancies of a Cancer, when the carrot poultice failed has been sweetened by it, the pain mitigated, and a better digestion produced. The cases I refer to are now in the Manchester Infirmary, under the direction of my friend Mr. White, whose skill, as a surgeon, and whose abilities, as a writer, are well known to the public.—

" Two months have elapsed since these observations were written (May, 1772), and the same remedy during that period has been assiduously applied, but without any further success. The progress of the Cancer seems to be checked by the fixed air; but it is to be feared that a cure will not be effected:—a palliative remedy, however, in a disease so desperate and loathsome, may be considered as a very valuable acquisition. Perhaps nitrous air might be more efficacious." —*Percival's Essays*, vol. 2. page 74. — Dr. Percival published his essays in 1773.—It is observable, that M. Peyrilhe has not once named Dr. Priestley, whose name is now so famous on this subject of fixed air;—and as Dr. Priestley's observations were not published till 1772. It would seem as if M. Peyrilhe had not seen even that edition: he would otherwise certainly have named him, when he so often quotes Hales, Macbride, and Pringle. *

same energy in experiments of this kind ; for I see no other difference between the one and the other, than that of the heat, which the living bodies communicate to the putrid mass that adheres to them ; while the putrid substances, which have been sweetened by this new antiseptic, by Sir John Pringle, Dr. Macbride, Gaber, and others, were usually cold when they were submitted to experiments.

§ LXXVI. To speak ingenuously, however, the experiments that have hitherto been made in this way, do not permit us to hope, that the antiseptic vapor intimately impregnates the whole of the cancerous mass. — Dr. Macbride's seventeenth experiment, would seem to prove the contrary. — Still, however, if the first vaporation is found to penetrate to the depth of two lines, and restores so much of the parts to their sweetness, may we not be permitted to hope, that the second operation will go further, and that thus, by being frequently repeated, the whole cancerous mass, will, at length become impregnated and sweetened ?

§ LXXVII.

§ LXXVII. Secondly. The constant use of the antiseptic vapor, will gradually diminish the putrefactive process; and the cause which excites it in the cancerous mass, will, of course, diminish with it.

§ LXXVIII. I foresee, that it will be difficult to procure the separation of the inorganic mass from the sound parts;—but would it not be a wholesome practice, after having diminished the putrefactive process, and rendered the disease more mild, to cut away the cancerous mass gradually to the quick? it is certain, that encysted tumours, the putridity of which is of a milder character, that is to say, more colliquative, admit of this treatment.—Perhaps the living principle, will, of itself, throw off the diseased and inorganic mass, if assisted by proper topics.—What those topics are, experience does not permit us to say with certainty, one excepted (q).—The separation of en-

(q) See what is said of the vapor of vinegar, § 83.

cysted tumours from the follicle, which is performed by nature, when the surgeon has not been able to extract it, seems to bid fair for the like to happen in cancerous cases.

LXXIX. Guided, therefore, by this theory, I have twice undertaken the cure of Cancer, by the antiseptics I have mentioned.—I will, here, ingenuously describe the result of those experiments (r).

Although neither of those trials succeeded so far as to bring about a compleat cure, yet the favourable circumstances they produced, deserve to be recorded.

(r) The approbation with which the Academy was pleased to honour this essay has secured to me, since the first edition of it, more of the confidence of the public, and I have had frequent opportunities of repeating this kind of treatment.—It has not only continued to produce salutary effects, but even in some favourable cases, has operated a compleat cure.—In the most desperate ones it moderates the pain, erosion and fœtor; and these circumstances surely are sufficiently favourable, for it to be universally adopted.

§ LXXX.

§ LXXX. A woman, aged about fifty-six years, had an ulcerated Cancer, which had compleatly destroyed the nose, the greater part of the upper lip, and a small portion of the cheeks. The pituitary membrane, which lines the os ethmoides and maxillary sinus, seemed likewise to be eroded : for the bones of the sinus were enlarged and softened, and the skin that covered them, was livid and ulcerated.—The ulceration was of two years standing. The disease had originated from a small tubercle in the upper lip ; and it was about five months before I saw her, that the maxillary glands on each side, had begun to swell, and, very soon afterwards, to become painful :—in short, the *cancerous state* existed in all its force.—I prescribed the antiseptic, which I shall describe hereafter (§ lxxxiv. and seq.), with a view to obviate the cancerous diathesis of the humours.—The ulcer itself was exposed, during half an hour, to the vapor of a mixture, in actual fermentation.—I had placed this mixture in a large vessel :—the ulcer was then covered with pledgets, dipped in the white of an egg,

egg, and strongly impregnated with camphor.—As I several times varied the composition of the fermenting mixture; and as it is certain that the gas, which exhales during the fermentation, is the same, from whatever substance it is procured, I shall not give any formula on this occasion (s). Guided by the doctrines and experiments of the ingenious Dr. Macbride, the reader will be able to chuse for himself. The day following, the patient informed me, that she had passed a more easy night than usual; but the aspect of the ulcer did not appear to be sensibly altered. The vapor was repeated, and on the third day, she underwent the same operation twice.—The pains were mitigated, and the ulcer

(s) Dr. Priestley is of opinion, that the most pure fixed air is to be obtained from diluted oil of vitriol and chalk.—It were to be wished, that some experiments might be made in our hospitals, with a view to ascertain the effects of the *different kinds of air*, in cancerous ulcers.—Mephitic air, and nitrous air, for instance, seem likely to produce various effects in these cases.—In order to conduct the air with more certainty to the ulcer, it would be easy to procure a case, which might be so contrived as to cover the ulcer, and have a tube opening into it, from the fermenting mixture. *

afforded

afforded a milder appearance :—on the fourth day, it was less foetid, and had furnished a little good pus.—I employed the vapor three times a day, and every thing began to have a more favourable aspect.—On that day, the patient informed me, that she found herself incommoded occasionally, with vertigo; and that she had felt this inconvenience, at times, ever since the third or fourth vaporation. —As the pains were much mitigated, and the ulcer had a very mild and favourable appearance, and furnished a pretty laudable pus; although somewhat alarmed at this vertigo, yet I ventured to continue the vaporations.—The vertigo still subsisted, and I began to suspect, that this symptom was occasioned by the vapor of fixed air, entering into the lungs (t); and, fearing

(t) It appears, however, from experiments, that fixed air may in no inconsiderable quantity be breathed without danger or uneasiness —The steam of an effervescent mixture of chalk and vinegar, has been inspired through the spout of a coffee-pot, in a great number of cases of phthisis pulmonalis, and with very good effects too.—See Percival's Med. essays, *

some dangerous consequences, I determined to change, in some measure, the plan of operation.

I placed in an earthen vessel, a few ounces of pot-ashes, mixed with a little water, and a small quantity of camphor : I covered this vessel with a funnel, and thus was able to direct the exhaling air immediately to the surface of the ulcer ; while, through a particular opening, I poured upon the ashes, sometimes vinegar, and sometimes the nitrous acid ^(u) : during all this time, the patient was able to breathe a pure air. — The vaporation in

(u) A number of observations and experiments seem to prove, that the *gas*, which escapes from fermenting substances, is in no way different from the vapor of burning charcoal. I would, therefore, advise surgeons to expose Cancers, and cancerous, and other putrid ulcers, to this vapor ; it being sometimes difficult and troublesome to procure the gas from effervercing and fermenting substances.—I am of opinion, too, that the dry heat of the coals will of itself be useful in drying the parts to which it is applied, and in diminishing the tendency to spontaneous motion, by dissipating the humidity :—it would seem, therefore, that the several properties of heat as ascribed by the ancients to the actual cautery, are not repugnant to the modern discoveries in philosophy.

this way, was renewed twice or three times a day, and continued half an hour each time. — During sixteen days, I employed the remedy in this way, with so much success, that I began to flatter myself with the hopes of being able to eradicate the disease: and my expectations were the more raised, as the ulcer had almost entirely lost its disagreeable smell; afforded a laudable pus; and the maxillary glands began to yield to the medicines that were given internally. Altho' the vertigo had diminished, it never had wholly quitted the patient: — on the contrary, about the thirty-fifth or thirty-sixth day of the treatment, it became more violent, and was attended with the most excruciating pains, about the upper part of the head, on the nature of which, I could conclude nothing with certainty. — On inquiry, the patient informed me, that she had formerly felt such pains, and even more violent ones. — Although the ulcer continued to be in the most favourable state, I was obliged to give up this method of cure, and to content myself with applying dossils of lint, twice or three

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times

times a day, impregnated in the way I before-mentioned.—The miserable patient being worn out by the most horrid torments, at length, died in convulsions, on the twenty-third day from the attack of the pain, and two months from the time she came under my care. — The ulcer continued to look well to the last.—It was impossible for me to procure the inspection of the body, which would probably have discovered to us the cause of the patient's death. If I might be allowed to conjecture on the occasion, I should attribute it to a cancerous disease within the head.

§ LXXXI. Another woman, aged about fifty years, had a Cancer in the breast, which had been ulcerated about nine months.—After every thing had been tried for her, except amputation, (to which she had constantly refused to submit), she was placed under my care.—I began by employing internal antiseptic remedies, which mitigated the fever, and colical pains, and likewise moderated the palpitations, and procured the
patient

patient some rest :—It likewise diminished the flow of a green and acrid matter from the vagina, which had tormented the patient during three or four months^(w), being accompanied with pains about the region of the uterus, and excoriation of the lower parts of the vagina. — I took care to apply the fixed air to the ulcerated breast, three or four times every day. I procured it, as in the other case, from pot-ashes, by means of vinegar, or the nitrous acid. I employed, also, the same dressings as before. In a very short space of time, the ulcer lost both its lividity

(w) This green, acrid and putrid uterine flux is not uncommon with cancerous women; nor is it uncommon in other chronic diseases, in which there is much putrid diathesis.—It does not, therefore, announce, as some practitioners have supposed, the presence of a Cancer in the uterus, but it proves the existence of the cancerous diathesis.—When the animal fluids have a morbid tendency to putrefaction, we ought not to be surprised that those should be the most liable to it, which circulate slowly through their vessels, &c. Whoever will recollect the state of the fluids in cancerous diathesis, and at the same time, the structure and situation of the uterus, will easily discover the causes of the uterine flux in cancerous women.

and fœtor, and furnished a tolerable pus. The edges of the ulcer began to soften, and the pains were much mitigated:—all these changes were the work of twenty days.—This patient felt no vertigo: and its absence in this case (which differed from the former one, only in the different situation of the Cancer), seems to confirm our conjecture concerning the cause of it in the first patient. — It would be superfluous to describe the effects of every vaporation; and it will be sufficient to say, that the patient underwent this operation twice a day; and this with so much success, that at the end of two months, the ulcer afforded a good pus, of a greyish white colour, and without fœtor.—The tumour, which formed, as it were, the basis of the ulcer, was considerably diminished, and the local pains had almost wholly disappeared.—I confess, I had here, as in the former case, formed the most sanguine expectations of a cure; but the patient did not seem to share with me in these hopes.—She confessed herself, indeed, to be mended, but nothing less than the healing of the ulcer,

cer, could satisfy her, and the time for this was not yet arrived. — Towards the close of the third month, when every thing seemed to be going on in a favourable manner ; notwithstanding all my arguments, she placed herself under the care of an adventurer, who had allured her, by promises of a speedy cure ; and I have since learn'd, that she died about nine months afterwards, in one of our hospitals, the disease having returned with additional violence,

§ LXXXII. Although these two cases terminated in death, we ought, by no means, to form an unfavourable opinion of the remedies I propose.—In both cases they brought the ulcers to a favorable state, and considerably mitigated the symptoms in general.

May we not, therefore, conclude, both from reason and experience,

First. That certain antiseptics are exceedingly powerful in obviating cancerous corruption.

Secondly.

Secondly, that these remedies are to be considered as the true suppuratives (x) of Cancer.

Thirdly. That they are capable of checking the erosion and the other bad symptoms.

Fourthly. That ulcerated Cancers, although incurable by the ordinary methods, are not absolutely without resource.

§ LXXXIII. I beg leave here to indulge a few conjectures.—I am inclined to think, that it is to this antiseptic quality, we are to ascribe the good effects of the carrot-poultice in these cases.—I have often used it, and have many times noticed its entering into the vinous fermentation, which we know affords the *gas sylvestre*.—Is it not on the same principles, that the Peruvian bark, applied to putrid ulcers, or to gangrene, produces

(x) The word *suppurative* must be taken here in its most extensive sense.

its effect ? and is it not by sweetening the corruption, that it checks it ? I will not deny, however, but that the powder of bark, may, in some cases, when the disease arises from atony, act by its tonic and astringent qualities :—but if it is useful in all putrid ulcers, without distinction, and without any regard to its tonic and stimulating powers, I have no doubt, but that its energy must be ascribed to the fixed air it affords.

C O R O L L A R Y.

It seems to follow, from these speculations, First. That we ought not to apply to Cancer or to putrid ulcers, either the carrot-poultice, or the bark, in small quantity, or deprived of the moisture, which will render them more easily susceptible of fermentation. Secondly. That these applications are not to be removed, until the fermentation is begun, and even finished. Thirdly. That we ought to employ them in the form most suitable to fermentation. Fourthly. That the diseased part ought to be plunged into the mixture,

ture, while in actual fermentation, as often as its situation will permit.—Might we not join to these methods, and to the use of fixed air, other vaporations; as of vinegar, for instance, which, although but little capable of sweetening corruption, may, however, serve to separate the parts of any animal substance (y).—This, perhaps, would be the most ready means of bringing about the separation of the diseased from the sound parts.

§ LXXXIV. Let it not be imagined, however, that we prefer the cure by antiseptics, to amputation: it will indisputably, be more advantageous, to extirpate the diseased mass, whenever circumstances will permit.

But, First. It sometimes happens, that the Cancer has attained so high a degree of malignity, that the prudent surgeon cannot venture to operate. Secondly. There are certain Cancers, which it

(y) Macbride's Essays. Exp. xix. pag. 133.

would be imprudent to amputate.—
 Thirdly. There are others, which are situated beyond the reach of the instrument, although they are capable of receiving the vaporation; such as the cancerous uterus, &c. Fourthly. After the amputation of a Cancer, there very often remain ulcers, which are prevented from healing by some means of putridity. Fifthly. The cancerous infection is sometimes renewed after the amputation, and leads us to despair of being able to save the patient.—It is, therefore, in all these cases of difficulty, in which we recommend the attempt to cure by antiseptics; because, at any rate, we believe it capable of mitigating the pain, and prolonging the days of the patient; and in favourable cases, we think it will even effect a cure.

Having thus finished what we meant to say, on the subject of the local or topical treatment, we will now proceed to treat of the internal remedies that will be proper in these cases.

§ LXXXV. We have already observed, that the method of treating Cancers in the first, and in the beginning of the second stage, of the disease, was commonly known and practiced (§ 17.), and that it was, of course, needless to dwell on it: we likewise proved, at the same time, that the remedies which had been proposed, with a view to remove the obstructions of the cancerous mass, were absolutely inefficacious, when it had advanced far in the second stage, and consequently could be of no use in the third and fourth periods of the disease.—All such remedies, are, therefore, to be considered as chimerical ones.—The methods of the empirics have been always contradictory to each other, and even the remedies of the dogmatists, have been often of a very opposite nature. We see some, for example, who, in imitation of Boerhaave, employ septic medicines, as the fixed alkali; while others follow the advice of Galen, and employ vinegar, which is an antiseptic:—for our own part we shall attempt to derive our indications
of

of cure, from the phenomena of the disease, and the reasoning we have bestowed on them: and the remedies we shall employ, will be calculated to promote the absorption of the cancerous virus, and to obviate its ill effects.

§ LXXXVI. The moment there exists a continued source of putrid sanies, it cannot fail to be taken up by the absorbent vessels; and thus the general mass of humours, becomes, gradually, more and more infected, till, at length, they become susceptible of the putrefactive process. — At the beginning of the spontaneous motion: the fixed principle being disengaged, the elements, which compose the animal machine, become decomposed, and, of course, the whole of its organic texture, is, in some measure, destroyed.—We know, that when the disease is in a certain degree, the solids, themselves, become susceptible of putrefaction: — a proof, that the whole œconomy feels the effects of the cancerous diathesis: — but if we are asked, what is the character of this diathesis, we must

ingenuously confess, that we know nothing with certainty, concerning its nature.—We are well aware, that scorbutic and pestilential putridity, differ from each other, and from the purulent and cancerous: but we are, by no means, sufficiently informed by experiments, what are the characters peculiar to each, so as to be able to point out the remedy which would be more proper to one than to the other of them.—It seems, therefore, that although we are in possession of many powerful remedies, the attempt to bring back the humours to an healthy state, when once affected by the cancerous diathesis, has hitherto been an insurmountable difficulty,

We think, however, we have some reason to conjecture, that the principal difference between the pestilential, malignant and scorbutic diathesis, and the purulent and cancerous, consists in this; that in the first three, the solids and fluids are infected with the disposition to putrefaction at one and the same time, and, as it were, by very equal steps:—Whereas, in the two last, the fluids are, probably,
much

much infected by the absorbed virus, before its effects are exerted on the solid parts of the system: for, to say nothing of the other phenomena, the patient becomes emaciated, the solids become dry, and acquire a more exquisite sensibility. Whence it happens, that the putrid *spiculæ*, excite them into more frequent and irregular motion, which, at length, becomes truly spasmodic; and these effects are not produced in the other diseases; if we except the malignant fever, when it attacks suddenly.

If we are, therefore, farther asked, what difference there is between the purulent^(z) and the cancerous diathesis, we are inclined to answer, that we deduce it, rather from their degree of intensity and energy, than from their essence.

Whatever, however, may be the specific character of the cancerous putridity,

(z) We wish to be understood here, as speaking of the phlogistic purulent putridity, which, far from being the same as the colliquative putridity, seems to differ from it infinitely.

which

which we leave, with regret, to be ascertained by some future experiments; it is certain, that we have very usefully employed the antiseptic treatment, published by Boerhaave, celebrated by De Haen, and confirmed by the experiments of Macbride.—We therefore advise others to put it in practice, not only in the circumstances we have before marked out (§ 84.), but likewise before the amputation of the Cancer, that is advanced far in the second stage, or that has attained the other period of the disease.—It will be also prudent to adopt it during the healing of the wound, and even for a long time afterwards, lest the effects of putrid diathesis, should take place when we least expect it.

§ LXXXVII. Every body knows, that the indications of cure by antiseptics, may be reduced, First. To the checking the actual putrid diathesis. — If we succeed in this, the irregular movements of the solids will cease likewise, as well as the disorders of the animal œconomy, to which this infection gives birth, and which

which it could not fail to foment, while it continued in its full force. Secondly. To prevent, as much as possible, the generation of putrid ichor, which is perpetually absorbed, while there are any remains of the cancerous mass, and is thus constantly re-producing the infection, we are attempting to destroy.

The first of these indications may be accomplished by diet and medicines. The regimen may be easily directed to aliments that are succulent, easily susceptible of fermentation, and which abound, at the same time, with fixed air.—They must likewise be such, as are likely to keep the belly gently open:—for drink; cyder, which has been long in bottles, and which is susceptible of the vinous fermentation; wort, will likewise be very useful:—we would also recommend the decoction of ripe fruit, or the following preparation, from the celebrated De Haen ^(a). “ Boil eight ounces of barley,

(a) Ratio Medendi, Tom. I.

“in water, reduce the decoction to two
 “quarts ; and add to each of these, one
 “or two drachms of cream of tartar, or
 “as much nitre ; and let this be used as
 “common drink.”

With respect to medicinal aliments ;
 barley, rice, &c. will be of great use.—
 The food should be acidulated with lemon
 or orange juice, cream of tartar, sorrel,
 &c. The patient should eat liberally of
 fruit ; and if his strength is not sufficiently
 supported by these, white bread may be
 added, that is well fermented ; with
 sweetmeats, &c. and when the putrid
 diathesis is somewhat moderated, a milk
 diet will be of great utility ^(b).

Amongst a variety of antiseptic medicines,
 the peruvian bark, seems to claim the
 preference. — We have used it with no
 little profusion, in the way mentioned
 by Dr. Archer of Dublin ^(c), giving the

(b) See an excellent dissertation on antiseptics, by M. de Boissieu page 128.

(c) Macbride's Essays, page 153.

patient a drachm of the cortex every hour, and washing it down with four ounces of the infusum amarum of the London Dispensatory, sometimes acidulated with the acid elixir of vitriol, from ten to thirty drops; and sometimes without acid.

We are accustomed to keep the belly open, by means of two ounces of the pulp of tamarinds, which we give in the morning, fasting, in a proper vehicle (b);

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(b) I am of opinion; although it is not mentioned by the learned author, that a prudent use of the sublimate, would add much to the efficacy of this course, especially when combined with other medicines, and so assisted by diet; as that no bad effects shall proceed from its irritating powers: it will certainly be a great corrector of cancerous diathesis.—We see a very striking instance of its good effects, in a case related by Mr. Gooch, of a lady, who had deep spreading cancerous ulcers on her tongue, tonsils and fauces, and who had in vain, during two or three years, tried every method except the sublimate:—Mr. Gooch proposed the use of it in very small doses, and to be long persevered in; and after bleeding and purging he prescribed it in the following manner:

R. Mercur. Sublimat. Corros. gr. ss.

Aq. Cinnam. Simpl.

Puræ aa unc. iij

f. solutio, in Mortario vitreo et add.

Tinct. Thebaic. gutt. xx.

f. Haust. IV.

That

sometimes it is sufficient, for this purpose, to augment the proportion of honey,

That ingenious surgeon added the Tinct. Thebaic, with a view to make the sublimate sit easier on the stomach, having observed, that without such a precaution, it often disagreed both with the stomach and bowels, especially when taken in large doses. — It is certain that the opiate here would tend to moderate the irritability of the whole system, which is known to be so acute in these cases, and thus would obviate any ill effects, which might otherwise arise from the sublimate. — In this patient, a great many decayed teeth and stumps were extracted to prevent irritation, and she drank a decoction of *sarsaparilla*, *guaiacum*, &c. — washed her mouth often with a gargarism, composed of barley-water and *mel-rosaceum*, in every pint of which, two or three grains of the sublimate were dissolved: — this part of the process would, however, by irritating the ulcers, be likely to do more harm than good, and therefore had better been omitted. — Besides this, she observed an exact regimen, avoiding every thing of a heating and irritating nature, and took now and then a cooling purge. — By this method, she was soon better, and in six months perfectly cured, without any return of the disorder. It is observable, that the bark is not mentioned in this case: it would certainly have been useful. — Dr. Akenfide found both the *cicuta* and sublimate were insufficient, when used by themselves in cancerous cases, although they proved curative when joined to a decoction of the bark: and as the insufficiency of the *cicuta* is now pretty generally acknowledged, it would seem probable, that Dr. Akenfide's success is to be wholly ascribed to the joint effects of the bark and the sublimate. — In these melancholy cases, every thing ought to be tried, from which there is a probability of success. — See Gooch's Med. Observations, and Dr. Akenfide's Paper in the Medical Transactions, Vol. I. *

which

which ought to be liberally used in the decoctions, &c.

The second indication may be fulfilled by the same means as the first, taking care to employ them in a prudent manner.

Although convinced, both from reason and experience, that we have thus indicated the true remedies for cancerous diathesis; we are willing, however, to acknowledge, that they will not succeed in all cases; and here are our reasons.—

First. There are certain bounds to the effects of antiseptics, beyond which they seem to have no energy.—So long as the gluten, which binds together, as it were, the solid parts, continues to be exempt from the putrefactive process, and that these parts preserve their natural organization, there is reason to hope, that they may be brought back to their natural state; but when this is not the case, the disease is irremediable. Secondly. Although antiseptics have a tendency to sweeten the putrid humours, yet those humours will not fail to diminish the activity of many of the medicines we employ, by rendering them susceptible of

the putrefactive process: and this will appear to be the more easy, when we consider that the proportion of active remedies, must necessarily be very small, when compared with that of the general mass of humours. How great, then, would be the value of a medicine, which when mixed with the putrid fluids, should possess a power, of restoring them to sweetness, of equal energy with the disposition with which the putrid fermenting principle is endued, of drawing the mild and healthy humours, into a state of putrefaction.

T H E E N D.